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D.A. General for Militia, Yeomanry, and Volunteers, in the Chair.

### "THE TRAINING OF VOLUNTEER INFANTRY."

By Lieut.-Col. C. G. A. MAYHEW.

UNLIKE the training of Regular infantry, that of Volunteers is subject to the idiosyncrasy of the force, the civil employment of its members interfering to a great extent with their regular attendance at drill, and in some instances the more practical part of the military instruction, viz., that derived from a week's encampment, is denied altogether to a large proportion of the men.

From a Volunteer's enrolment, until his resignation, it is not always possible to place dependence upon his being present at any specified parade, although, by judicious arrangement of times and dates, the majority of the members of a corps are able to acquire a fair amount of military knowledge. It would be interesting to know the average number of attendances at drill of the whole force; but, as these figures are not forthcoming, it may suffice to take those of an ordinary country battalion, exclusive of the permanent staff.

	Recruits.	Trained Volunteers.
Average attendance.....	42.12	26.16
No. who attended 40 and upwards.....	152	29
"    "    from 30 to 39.....	75	233
"    "    "    25 " 29.....	—	192
"    "    "    20 " 24.....	—	133
"    "    "    15 " 19.....	—	82
"    "    "    10 " 14.....	—	137
"    "    "    9 " —.....	—	15
"    "    "    7 " —.....	—	6
"    "    less.....	—	4
	227	831

Strength, 1,058. No. in camp, 720. Non-efficients, 18.

The essence of the present system of training the rank and file is contained in the following paragraphs from the Volunteer Regulations:—

"223. When the adjutant proceeds to a company drill, he will take with him a copy of the muster-roll of the company. The roll will be called over in his presence, and the names of the Volunteers present will be checked by him.

"He will, in like manner, be furnished with a roll of recruits, and will examine them in squad drill, the manual and firing exercises (especially the various positions for firing), and company drill. The rolls will be submitted to the inspecting officer at the annual inspection.

"224. The adjutant will make a note of the names of those Volunteers present whom he may find qualified *in knowledge of drill*, for certificates of efficiency. In the event of any Volunteer not satisfying the adjutant as to his knowledge of drill, he will not be granted a certificate of efficiency unless he is seen again by the adjutant at a later visit, and then considered by him to be qualified. The adjutant will not sign a certificate of efficiency for any Volunteer whom he has not during the year seen at drill, and considered qualified."

A certificate of efficiency is granted only to those Volunteers who, having attended the minimum number of drills and qualified in class-firing, possess a competent knowledge of close and extended order drill, and the manual and firing exercises, &c. Again, in the appendix to the Regulations, we read that "a trained Volunteer is on no account to be permitted to proceed to target practice until he has been certified by his commanding officer or adjutant, or the captain commanding his company, that he is *thoroughly instructed* in aiming drill and position drill as in the firing exercise."

It will be noticed that the qualifications for a certificate depend entirely on the knowledge of drill displayed by the Volunteer; generally speaking, however, the conditions are complied with by merely counting the number of compulsory attendances, and this has come to be considered the sole test of efficiency. In Chapter XXIII, on Volunteers, contained in the Army Book of the British Empire, Section 3, Training Drill and Musketry, we read:—

"The minimum number of drills which each Volunteer must attend, and the standard of musketry which he must attain, are laid down in full detail for the different arms in the appendix to the Volunteer Regulations. Broadly speaking, a private must attend 60 drills during his first two years, each of at least an hour's duration; and in subsequent years nine drills, three of which must be battalion drills."

Here I would point out that in the case of a battalion going into camp, Volunteers, unable to be present, are permitted, with the sanction of the commanding officer, to substitute company for battalion drill.

"In addition to this, he must pass a standard of musketry, about equivalent, practically, to hitting a 6 x 4 ft. target about 15 times out of 20 shots, at ranges from 100 to 300 yds. It must be admitted



that the standard in both cases is low. But it must be recollected that in most Volunteer corps the large majority of the men go far beyond the compulsory requirements of Government, both in shooting and attendance at drill."

"The great blot on the present system of training is the fact that it is impossible to ensure that all Volunteers shall go through, even once a year, the movements and practices absolutely necessary to make them handy and efficient soldiers. There does not seem to be any possibility of seriously increasing the compulsory requirements of the training of privates, under the present constitution of the force. How much then depends on the quality of the instruction conveyed when the men are present, how much on the vigilant efficiency of commanding officers, and how much, particularly in the instruction of recruits, on the maintenance of the highest, most recent, and up-to-date standard of efficiency in the staff sergeant instructors, whose work should be closely scrutinized by inspecting officers on every opportunity."

I wish to commend the last paragraph to your earnest attention. The object of my lecture to-day is to show that it may be practicable for every member of the force to go through a systematic course of instruction. The end to be accomplished is to bring within the reach of the Volunteer as thorough a training as the limited time at his disposal will admit, and thus to make him worthy of the certificate of efficiency he aspires to earn.

#### *Recruits.*

The Regulations contain no instructions with reference to the course of drill or musketry for either the recruit or trained Volunteer. The certificate of efficiency is the same, both for recruits who have performed 30, for those who have accomplished 60 drills, and for the trained Volunteer, during the whole period of his service.

To comply with the conditions of the certificate, about 129 sections of the drill and exercise books should be learnt; in addition to this, musketry instruction on the scale laid down for militia recruits would occupy 15 drills of one hour's duration. It is evident, therefore, that without attaching a very elastic meaning to the words "competent knowledge" contained in the certificate, it is practically impossible for a recruit to qualify for one in 30, and not an easy matter for him to do so in 60 drills.

The method of training recruits varies considerably in different localities. In most battalions they are enrolled together twice or oftener in the year, and are drilled by squads, as far as possible continuously, every effort being made to induce them to complete 60 drills in the first year. In some cases, however, there is no recognised system; recruits are enrolled at any time, and passed into the ranks as quickly as possible, often with very little instruction. The chief object is attained when the attendance counts as a drill. It is impossible for an adjutant of a country battalion to personally superintend the training of his recruits. They are practically left to

the local sergeant instructors, whose capability of determining what is most useful for the Volunteer to master may not be altogether beyond question.

In attempting to frame a syllabus of drills for recruits which would be applicable to every battalion, however situated, the following points must be considered:—

1. What is the most important subject for the Volunteer recruit to master?

2. How can he be instructed in the subjects mentioned in the certificate of efficiency during the first period of training, viz., in a minimum of 30 drills?

3. What should be the course during the next period which completes 60 drills?

4. How are slight irregularities of attendance to be provided for?

There can be no divergence of opinion as to the reply to the first question, What is the most important subject for the recruit to thoroughly master? Musketry is undoubtedly of primary importance to the Volunteer; for, apart from the view that in case of invasion, the successful defence of this country may rest on his expertness with his rifle, he is absolutely dependent in peace-time on the Government capitation grant, which he cannot earn unless he attain a certain standard in class-firing.

Before proceeding to reply to the other questions it may be as well to classify the subjects according to their degree of importance, remembering that it is practically impossible to teach every subject thoroughly in 30, or even in 60, drills.

(a.) Firing exercise. (The various positions are laid down as a *sine quâ non* in para. 223, Vol. Reg.)

(b.) Preliminary musketry and aiming drills.

(c.) Close order drill.

(d.) Extended order drill.

(e.) Manual exercise.

How far, then, can the recruit be taught these subjects during the first period?

A great deal depends upon the abilities of the men. Some naturally show greater aptitude for drill than others, and can be rapidly pushed on. The following instruction, however, may be imparted with every prospect of an average recruit qualifying in about 30 attendances.

(a.) Firing exercise—to load and fire, standing, kneeling, and lying down (Sec. 2, Musk. Instr., Chap. III).

(b.) Aiming drill and theoretical principles (Sec. 1, 3, 4, 5, Musk. Instr., Chap. III).

(c.) Squad drill in close order.

(d.) Squad drill in extended order.

(e.) Manual exercises. The following exercises only:—Order, shoulder, trail, fix and unfix bayonets, charge bayonets, stand at ease, present, pile arms, dismiss.

(f.) Firing 10 rounds of blank and 20 rounds of Morris tube ammunition.

The duration of the parades may advantageously be increased from one hour to an hour and a half, whenever possible, so that the recruits may be well grounded. About half an hour would be devoted to firing exercise and aiming drill, and the remainder to close or extended order drill and the manual exercises. The review exercise is postponed until the second period. So many valuable hours are usually wasted in attempting to teach the recruit to perform this feat of arms with precision which is rarely if ever attained. Only the manipulation of the rifle required for squad drill is retained.

What should be the course during the second period?

- (a.) Collective firing. Fire discipline.
- (b.) Company drill in close order and ceremonial.
- (c.) Company drill in extended order.
- (d.) Review exercise.

And, for those requiring it, aiming drill and Morris tube practice. Special attention should be given to perfecting the squads in collective firing and in fire discipline. Whenever drilled out of doors in extended order, they could be opposed to each other. The principles of attack and defence should be explained, and every recruit should be catechized by the adjutant.

How are slight irregularities of attendance to be provided for?

1st. By so arranging the diary of parades that at each attendance, as far as possible, the time is apportioned to each one of the subjects, and by constant repetition throughout the course.

2nd. By keeping a "progress sheet" for each recruit, registering accurately the number of times he has been instructed in the various drills and exercises. Reference to this will enable any omission to be promptly corrected.

The Volunteer recruit, as a rule, receives his rifle on the first occasion he appears for drill, and takes it home after parade. It is necessary, therefore, that he should be shown how to hold and clean it at once. As there is no compulsory test of eyesight, it is a wise precaution to ascertain at the outset if he is likely to be able to learn how to aim correctly before he has incurred any expenditure in the shape of uniform; in the event of failure his career as a soldier may be brought to a premature close.

The Drill Book states that in nearly all cases the recruit should receive his rifle after a week's drill, but the time at disposal is so extremely limited that it has been found advantageous to put it into the Volunteer's hands from the start; drill without arms is intermixed with musketry and rifle instruction. This gives a certain diversity in the exercises, and the whole time is fully occupied; under ordinary circumstances a large portion of it is, I fear, wasted in "standing at ease" and talking.

The introduction of musketry preliminary drills so early in the recruit's service touches debatable ground. On reference to the German soldier's course of training, it will be found that the recruits are instructed in aiming from the first day, and in the simple motions of loading during the first week of their service. What is possible in Germany should be practicable in England, particu-

larly when the peculiar circumstances of the case are taken into consideration. A very interesting article, containing a translation from the German exercise books, appeared in the Journal of this Institution, which fully explained the method adopted in the Fatherland, and demonstrated how the greatest amount of military knowledge can be imbued thoroughly in the smallest possible time.

The diary of parades for recruits (Appendices I and II) will show how the various subjects have been apportioned between the attendances. Care has been taken that the earlier musketry instruction is limited to the correct position, and that the progress at first is very gradual. It may be necessary slightly to modify the diary for local or other reasons, obstacles must of necessity arise when space is limited, for Volunteers cannot always be certain of the occupation of their own drill halls, and some, unfortunately, have no drill halls to occupy.

Aiming drill at night presents but little difficulty: a proper adjustment of light on the rifle and miniature target is all that is required. It will be found convenient in some places to fix an ordinary lamp with a reflector at sufficient height above the recruit, whose back should be close to the wall, so that when he takes aim from the tripod the light shines full on the sights.

Extended order can be illustrated by diagrams when it cannot be actually performed, although it is possible to demonstrate the principles in a very limited space.

The progress sheets (Appendix III), bound to form a handy memorandum book, should commend themselves to every member of the permanent staff. They show at a glance how much instruction a recruit has received in each subject, and correspond to the rolls, mentioned in para. 223, Volunteer Regulations, to be produced at inspections.

No recruit should, under any circumstances, be permitted to join the ranks until he has completed his first, and in most instances his second, period, and has been examined and passed by the adjutant. Sometimes it may be convenient, when recruits have attended from 40 to 45 drills, to exercise them in ceremonial with their companies; but on no account should recruits join the battalion until their course was thoroughly completed. Speaking generally, recruits should be enrolled so as to form two squads—one not later than January 15, the other about the beginning of August. The first squad will have completed its drill before camp and inspection, and the second squad, enrolled to fill vacancies, before the annual returns are rendered.

At the annual inspection, the recruits who have not been passed into the ranks should be formed up together, as in the Regular Service.

Special stress is laid on the education of the recruit, for if it be not conducted on the best possible lines, and the rudiments of drill are not ingrained thoroughly in the young beginner, no subsequent efforts will be of any use, he will never become really efficient as a trained Volunteer.

*Trained Volunteers.*

We now pass on to consider how the trained Volunteer who has emerged from the recruit's stage can be given a systematic yearly training.

Serious difficulties meet anyone making an attempt to carry this out; for, however skilfully the company and battalion parades may be ordered, it is practically impossible to assemble every member of a corps on any fixed date, and therefore a continuous course, except when a battalion is assembled in camp, is out of the question.

The usual method adopted is to order a certain number of company drills early in the year, and, as the evenings grow longer, battalion drills are commenced. I am speaking now of corps where a battalion can be formed. In the majority of country corps the only time the battalion assembles is during the annual encampment.

Now if all, or even a large proportion of, the members of a company were to attend every parade, there would be but little difficulty in drawing up a diary, and the conundrum would be solved; but, as it is impossible to enforce attendance, some other system must be originated.

It is first necessary to determine what is the course that each individual should undergo.

The following would embrace those subjects of the greatest utility to the Volunteer:—

- 2<sup>1</sup> preliminary musketry drills,  $\frac{1}{2}$  hour.
- 1 aiming or judging distance,  $\frac{1}{2}$  hour to 1 hour.
- 2<sup>1</sup> squad or company close order, 1 hour.
- 2<sup>1</sup> " " extended order, 1 hour.
- 1 company or battalion close order,  $1\frac{1}{2}$  hours.

*Part IX.—Ceremonial.*

Sections 182-189.—Open order, close order.  
 Quarter column on right company.  
 March past in column and quarter column.  
 Manual and firing exercise.

*Part III.—Manœuvre.*

Sections 85-86.—Open to column.  
 Section 79.—Formation of line from column.  
 " 81.—Change of front or position.  
 " 80.—Formation of column from line.  
 " 89.—Wheeling in quarter column and in fours.  
 Sections 93-94.—Moving to a flank in fours.  
 Section 84.—One deployment.  
 " 97.—Receiving cavalry in line.  
 " 77.—Line advancing and retiring.  
 " 78.—Passing obstacles.

<sup>1</sup> One drill for Volunteers who had been returned four times as efficient.

Section 95.—Advance or retire in échelon from right or left.

„ 96.—Forming line.

Sections 71-72.—Defiling, increasing and diminishing front.

1 company or battalion extended order drill,  $1\frac{1}{2}$  hours.

As a battalion in the first line.

As a battalion in the second line.

Without in the least wishing to disparage the excellent work of a very large majority of Volunteer officers, I think it will be conceded that the permanent staff is appointed for instructional purposes, and upon the adjutant and sergeant instructors would devolve the duty of putting the members through the course just mentioned.

These drills would correspond to a great extent with the earlier portion of the military training in vogue in the regular forces.

Parades would be ordered as usual at the commencement of the drill season, and every member's performance would be registered, either by progress sheets, as with the recruit, or by reference to the parade state and diary. It might be convenient to devote part of each company drill to musketry, and part to close or extended order; but this would be a matter for the discretion of the officer commanding. At the conclusion of the company parades, it would be found that a certain number of men were conspicuous by their absence; they might attend battalion parades without having completed the first part of the course, and would become, in Hythe language, "casuals."

The battalion would then be classified as follows:—

Recruits.

Untrained Volunteers.

Trained Volunteers.

At every subsequent parade the "untrained Volunteers" would be formed up on the right of their companies, and handed over to the members of the permanent staff, until they had completed their course.

I adopted a similar method when serving as adjutant of a Volunteer battalion. Soon after my appointment I found myself in camp and noted how considerably the members changed daily. Later in the year I was rather awed by the certificate I was called upon to sign to the effect that I had personally examined each member, and had granted him a certificate of efficiency in accordance with the regulations, particularly as I found it extremely difficult to ascertain if I had actually seen the individual or only his name on the muster roll. I therefore caused all the names to be printed or written on the back of the company states, and struck out those who did not favour me with their presence at my visits. In the next camp I ordered the members whose acquaintance I wished to make to be kept off duty and paraded for my inspection at early morning drill, much, as I heard afterwards, to their surprise and to the amusement of their comrades. I kept them busily engaged for more than an hour, and I have no doubt gave them an excellent appetite for breakfast. It had a good effect, for the adjutant's parades were

afterwards well attended, the men preferred not to be selected for his particular attention in camp.

After camp, or when battalion drills had been discontinued, there might still be a few "untrained Volunteers." They would complete their course with recruits, or if an opportunity were afforded for the examination or inspection of non-commissioned officers, their services might be utilized in skeleton or rope drill for battalion work. If it were necessary for any "untrained Volunteers" to drill with the battalion, in order to complete the regulated number of attendances for efficiency, they should be under the direct supervision of a member of the permanent staff.

First class shots and marksmen need not attend musketry parades unless they wished.

By adopting these measures, I think it would be quite possible for every Volunteer to go through a short systematic course, and to be allowed the privilege of a personal examination by the adjutant for a certificate of efficiency in strict compliance with the Regulations. There would be certain advantages attending a recognised system of this sort, and not one of the least would be that it would keep out of the ranks, if only for a time, the Volunteer who has failed to be assiduous in his military duties, and is therefore backward at drill. At present the temptation is strong for commanding officers to obtain a good muster on parade, and when a battalion is consolidated, previous training counts for nought. Recruits in every stage of preparedness, and old hands who have perhaps donned their uniform for the first time in the season, are placed shoulder to shoulder with those who have attended 40 or 50 drills. Worse than this, the thoroughly efficient Volunteer is compelled to drill on all occasions with those of his comrades who are his inferiors in knowledge of military duty, and he is therefore being continually kept at the foot of the ladder. If the advantages to be derived from a course of training were thoroughly explained to all Volunteers, I have so much faith in their intelligence and common sense, that I am convinced that the necessity for compulsory measures of any sort would be very limited, and, whenever their employment would admit, they would use their best endeavours to carry it out in its entirety.

The permanent staff would also be employed at their legitimate work, which should be the preparation of those Volunteers who are backward at musketry or drill. Too often they undertake the joint command of companies with their officers, and the latter are much better left to their own resources.

Before camp a programme should be prepared appropriating, as far as possible, each parade to some definite object. Trained Volunteers should be taught shelter-trench exercise and outpost drill on early morning parades, while the untrained men are completing their course.

One of the first duties a Volunteer would be required to perform, if called out for actual military service, would probably be to dig a shelter-trench; how few have been practised in this exercise? At any seaside camp the trenches can be dug in the sands, and even



where the ground cannot be disturbed, the tools can be distributed, marching and laying out demonstrated, and the officers instructed in the duties of working parties, and method of covering the position. Outpost drill can be taught anywhere. In brigade camps a programme of all the manœuvres in brigade should be carefully drawn up and circulated some weeks previously, so that every officer and non-commissioned officer should know exactly what he will be called upon to do, and be given an opportunity of studying the movements in his drill book (*vide* Appendix IV). Country battalions should not, as a rule, be assembled in brigade until the afternoon of the third day in camp, so that they may be able to parade at least eight times previously. A simple tactical exercise repeated at each brigade drill, and the mistakes which have occurred corrected, will be found far more instructive than a series of elaborate manœuvres which few will understand, and most of which will be incorrectly performed. The bearer company should form a separate camp, and be entirely under the supervision of the bearer company officers. The cyclists should be brigaded as a company of mounted infantry under a qualified officer, and should occasionally be practised in reconnaissance duties. Every cyclist should be given a copy of reconnoitring notes printed on linen, and should be provided with a map (Appendix V).

The education of the non-commissioned officers is one of the serious problems which the adjutant has to solve. For the most part they are the best attendants at all parades, and now that examinations for corporal have been introduced in several battalions, none but zealous and painstaking Volunteers aspire to earn the stripes.

Non-commissioned officers of all ranks should be encouraged in every way to qualify for "drill certificates in firing exercise," and those qualified should be asked to assist in instructing recruits in aiming drill and collective fire. Aspirants for sergeants' certificates could most advantageously be employed in assisting to command "untrained Volunteers" when drilled apart from the battalion.

Officers when joining, if unable to be attached to a regular battalion or to a school of instruction, should go through a complete course of recruit drills. For the higher training of officers and non-commissioned officers the greatest benefit will be derived from the formation of a brigade tactical association. In almost every battalion one or two officers can be found who are able and willing to instruct their non-commissioned officers in topography and outpost duty, and, by encouraging them to compete for prizes, much valuable work can be done. A programme should be drawn up every autumn for the winter months, consisting of one or two simple outdoor tactical exercises in which both officers and non-commissioned officers can take part, with occasional lectures and war-games. This will prove sufficiently attractive to induce a considerable number of members from each battalion to join.

Tactical classes for the officers can be formed, and instruction carried on by correspondence. A very small subscription, say 5s., will be found sufficient to cover all incidental expenses, and the



meetings can be arranged to suit the convenience of members in various localities.

I must confess that when the idea of starting a tactical association was mooted in the brigade to which I am attached, I had some doubts as to its success, on account of the battalions being scattered over three counties, but as we are now in our third year of existence, and we number nearly 100 members, it has exceeded, so far, all expectations. Before closing my remarks, although I do so with some diffidence, I cannot but express my belief that if the services rendered by the trained Volunteer were to receive some notice, however slight, from the authorities, the whole standard of the efficiency would be raised considerably. It is not by compulsion, but by encouragement, that the force is to be improved.

The following scheme was published in an early number of the "Volunteer Service Magazine," but I may be allowed, perhaps, to bring it to your notice. The present efficiency badge is more or less obsolete. Every member of a corps is bound to make himself efficient, and therefore it can no longer rank as a distinction. It can be worn equally by the Volunteer who has barely qualified, and by the man who has attended 80 or 100 drills in a year, has fired in field practices, and has earned his marksman's badge. His reward is only a clear conscience and a knowledge that he has done his duty to his corps and to his country.

The efficiency badge might with advantage be abolished, for its retention is only a useless expense, and in its place badges called "good service badges," in the form of good conduct stripes, might be substituted.

They should be granted to the rank and file on the following conditions :—

- |                             |                            |  |
|-----------------------------|----------------------------|--|
| 1. After 4 years' service.  | One good service badge.    | <i>a.</i> Fired at least 60 rounds and passed into 2nd class.<br><i>b.</i> Completed an average of at least 30 drills in the last 4 years' service.  |
| 2. After 8 years' service.  | Two good service badges.   | <i>a.</i> In possession of one good service badge.<br><i>b.</i> Fired 60 rounds and passed into 1st class annually.<br><i>c.</i> Completed an average of 25 drills in the last 4 years' service. |
| 3. After 12 years' service. | Three good service badges. | <i>a.</i> In possession of two good service badges.<br><i>b.</i> and <i>c.</i> As above.   |
| 4. After 18 years' service. | Four good service badges.  | <i>a.</i> In possession of three good service badges.<br><i>b.</i> and <i>c.</i> As above.   |

On completion of twenty years' service, if in possession of four good service badges, a Volunteer who had made the highest average of attendances during his service, and was duly qualified, might be recommended for a good service medal, with distinguishing ribbon, green or grey.

The commanding officer should have power either to deprive a Volunteer of his badge for misconduct, or to defer the date upon which he would become entitled to one; it should, however, be recoverable, provided a year were allowed to elapse between the time when the award was made and the time when the Volunteer became eligible for its restoration. It may be urged that the minimum number of attendances is too low, but as all corps are included in the calculation, it would be as well not to put the standard too high.

No pretension is made that this scheme is perfect, or that it might not, in practice, require modification or alteration, but it is an attempt to show what might be done to encourage and reward true efficiency.

The cost to the public would be extremely small, even if the medals were conceded. If they were not given, it would be *nil*. The badges would be defrayed from the capitation grant as they are now. The medal would not constitute a large increase to the Volunteer vote, and the conditions would be found to be sufficiently onerous to ensure that the recipient was well worthy of some slight recognition from a grateful country.

## APPENDIX I.

*Diary of Parades.—First Period.*

No. of drill.	Date.	A. Firing exercise.	B. Aiming drill, &c.	C. Close order drill.	D. Extended order drill.	E. Manual exercise.	F. Blank or Morris tube.	Remarks.
1	Nov. 7	Parts of rifle. Sec. 1. First lesson	Rules of aiming. Sec. 3	Position. Part 1, Sec. 3. Standing at ease. Sec. 4.	.. ..	Order arms. Shoulder arms.	..	A. The correct position only should first be taught; the remainder in subsequent lessons.
2	"	Ditto. Load and fire standing. Sec. 2.	Aiming, 100 yds.	Turnings. Secs. 5 and 6.	.. ..	Order, shoulder, trail.	..	
3	"	12 Clean rifle. Second lesson, load and fire standing	" 200 "	Saluting, Sec. 7..	.. ..	Ditto. Fix and unfix bayonets.	..	
4	"	14 Ditto .....	" 300 "	Marching, Secs. 9-14	.. ..	Saluting with rifle. As above.	..	The progress must be very gradual at first.
5	"	16 Ditto .....	" 400 "	Stepping out, &c. Marking time. Secs. 15, 16, 17	.. ..	Ditto.	..	
6	"	19 Ditto. Load and fire in quick time	" 500 "	Stepping back. Changing step. Secs. 18, 19	.. ..	Ditto .....	..	Previous lessons should be repeated at each drill up to the 8th.
7	"	21 Ditto .....	" 600 "	Double march. Side step. Turning. Secs. 20, 22	.. ..	Ditto.	..	
8	"	23 Repeat .....	Catechism.....	Repeat .....	.. ..	Repeat.	..	

## APPENDIX I—continued.

No. of drill.	Date.	A. Firing exercise.	B. Aiming drill, &c.	C. Close order drill.	D. Extended order drill.	E. Manual exercise.	F. Blank or Morris tube.	Remarks.
9	Nov. 26	Load and fire kneeling. Care of arms, &c. Third lesson	Aiming at figure target 100 yards	Squad in single rank. Secs. 23, 24	.. ..	Charge bayonets.		
10	" 28	Ditto .....	Ditto 200 yards	Turnings. Diagonal march. Secs. 25, 27	.. ..	Stand at ease.		
11	" 30	Ditto .....	" 300 "	Change of front and direction. Secs. 28, 29	.. ..	Ditto.		
12	Dec. 3	Load kneeling in quick time	" 400 "	Marching in file. Wheeling. Secs. 30, 31	.. ..	Marching with arms. Dismiss.		
13	" 5	Ditto .....	" 500 "	Forming squad. Sec. 32	.. ..	Ditto.		
14	" 7	Ditto .....	" 600 "	Repeat with arms	.. ..	Pile arms.		
15	" 10	Fire standing and kneeling	Catechism .....	Repeat* .....	.. ..	Repeat, .....	..	* Turnings should now be correctly performed at the halt and on the march.
16	" 12	Fire lying down	If available, vanishing target 150 yards	Formation in 2 ranks. Open Order. Secs. 35 to 38	Extending and closing. Secs. 47, 48, 49			
17	" 14	Ditto .....	Ditto .....	Changing ranks. Diagonal march. Change of front. 39 to 41	Ditto .....	Present arms.		
18	" 17	Ditto .....	Ditto .....	Formation of fours. Sec. 42	Ditto .....	Ditto.		

## APPENDIX I—continued.

No. of drill.	Date.	A. Firing exercise.	B. Aiming drill, &c.	C. Close order drill.	D. Extended order drill.	E. Manual exercise.	F. Blank or Morris tube.	Remarks.
18	" 17	Ditto .....	Ditto .....	Formation of fours, Sec. 42	Ditto .....	Ditto .....		
19	Dec. 19	Fire in quick time	Moving target, 150 yards	Formation of fours, Sec. 42	Extending and closing. Secs. 47, 48, 49.	Present arms.		
20	" 21	Ditto .....	Ditto .....	Ditto .....	Advancing. Retiring. Marching to a flank. Secs. 50, 51	Ditto. Pile arms.		
21	" 24	Ditto, standing and kneeling	Ditto .....	Fours wheeling and forming squad. Sec. 43	Change of front. Sec. 52.	Ditto.		
22	" 26	Ditto, lying down	Extreme range sights	Ditto .....	Ditto.			
23	" 28	Repeat .....	Catechism .....	Repeat .....	Repeat .....	Repeat.	Blank....	D and F to be arranged according to weather, and time available for drilling out of doors.
24	" 30	Theoretical principles. Musketry Instruction	Section 4. action	Clearing obstacles. Dismissing. Secs. 44, 45	and independently. Halted. Sec. 53.	..		
25	Jan. 2	Ditto .....	Ditto .....	Repeat .....	Ditto. Advancing and retiring. Sec. 53.	..	Blank	
26	" 4	Ditto .....	Ditto .....	Repeat. Assembly. Sec. 55	Charging. Sec. 56. Assembly. Field calls and signals. Sec. 57.	Charge bayonets.	Morris tube 5 rounds	
27	" 7	.. ..	Judging distance. Sec. 5	Repeat .....		..		
28	" 9	.. ..	Ditto .....	Ditto .....	Ditto .....	..	Ditto	
29	" 11	.. ..	Ditto .....	Ditto .....	Ditto .....	..	Ditto	
30	" 13	.. ..	Examination by Adjutant .....	Adjutant .....	.. ..	..	Ditto	

## APPENDIX II.

*Diary of Parades.—Second Period.*

No. of drill.	Date.	A. Firing exercise.	B. Aiming drill, &c.	C. Close order drill.	D. Extended order drill.	E. Manual exercise.	F. Blank or Morris tube.	Remarks.
1	Jan. 18	Volley firing, standing, single rank	..	Organization of a company. Inspection and proving. Part II, Secs. 58 to 60	..	Manual exercise by numbers	..	A. Special attention should be given to volley firing by word of command in close and extended order.
2	" 20	Ditto, kneeling..	..	Ditto .....	Advance by sections, firing	..	Blank	
3	" 23	Ditto, lying down	..	Advancing and retiring. Diagonal march into line. Left form. Sec. 64	..	Manual exercise by numbers		
4	" 25	Repeat .....	..	Into column forward. Sec. 64	..	Ditto		
5	" 27	Double rank ....	..	Change of front. Sec. 65	..	Ditto		
6	" 30	Ditto .....	..	Repeat. Change direction of formation of fours. Secs. 65, 67	Explanation of general rules. Sec. 125 Catechism	Manual exercise, quick time	..	Wet. Could not drill out of doors.
7	Feb. 1	Repeat .....	If required.		..	Ditto		
8	" 3	Independent firing, standing						

## APPENDIX II—continued.

No. of drill.	Date.	A. Firing exercise.	B. Aiming drill, &c.	C. Close order drill.	D. Extended order drill.	E. Manual exercise.	F. Blank or Morris tube.	Remarks.
9	Feb. 6	Independent firing, standing		Forming to front and rear. Sec. 68	..	Manual exercise, quick time		
10	" 8	Ditto, kneeling..		Ditto .....	..	Ditto Manual, in quick time and on the march		
11	" 10	Ditto .....	If required.	Ditto .....	..	Change arms ..		
12	11	Ditto, lying down	..	Ditto .....	Firing by sections. Reinforcing. 2nd line charge	Ditto	Blank	
13	" 13	Volley and independent, kneeling and lying down	..	Sidestep. Change ranks. Repeat. Secs. 69, 70	..			
14	" 15	Ditto .....	..	Repeat .....	Catechism .....	Ditto		
15	17	Repeat .....	Catechism .....	Formation of companies and sections. Sec. 71.	..	Secure arms. Ground " Pile "		
16	" 20	..	..	71. Clearing obstacles. Sec. 72	..			
17	" 22	Volley and independent F. Ex. Sec. 41	Infantry fire tactics. F. Ex. 44	Resisting cavalry. Sec. 73. Assembly. Sec. 74	Resisting cavalry. Assembly Repeat .....	Prepare for cavalry Repeat	Blank	
18	" 24	Repeat .....	..	Repeat .....	Repeat .....			

## APPENDIX II—continued.

No. of drill.	Date.	A. Firing exercise.	B. Aiming drill, &c.	C. Close order drill.	D. Extended order drill.	E. Manual exercise.	F. Blank or Morris tube.	Remarks.
19	Feb. 27	Repeat.....	Catechism .....	Dismiss. Sec. 75	Catechism ....	Repeat		
20	Mar. 1	Firing exercise ..	..	Ceremonial. Siz- ing a company. Part XIV. Open order. Part IX, Secs. 181, 182	..	Review exer- cise		
21	" 3	Ditto .....	..	March past. Shoulder and trail. Part IX. Sec. 183	..	Ditto		
22 } to } 30 }	..	..	..	With company	repetition	..	..	{ 9 drills; 4 close order, 5 ex- tended order.



APPENDIX III.  
*Volunteer Infantry Recruits' Progress Sheet.*  
 (Method of Entry.)

Regimental No.	Name.	Address.	Date of Enrolment.	Period.	A.		B.			C.	D.	E.	F.		Class firing.			Date of Examination.	Adjutant's Initials.	Remarks.			
					Firing exercise.	Aiming drill.	Judging distance.	Theoretical principles.	Close order drill.				Extended order drill.	Manual exercise.	Blank firing.	Morris tube practice.	1.				2.	3.	
2231	Pte. Geo. Smith	1, Bridge Street, Derby.	6 / 1 / 94	1st	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>					
				Total...	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	30/3/94	A. B.	Requires more aiming drill.
				2nd	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>			
				Total...	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>	<del>XX</del>			
				Grand Total	43	30	3	4	54	27	38	6	8	8	41	38	40	20/6/94	A. B.				

## APPENDIX IV.

(Printed on a card to fold in three.)

## PROGRAMME OF DRILL AND MANŒUVRE IN BRIGADE.

*Brigade Drill will commence on Wednesday Afternoon.*

## CEREMONIAL.

- 1.—The Brigade will be formed in line of Quarter Columns, at 6 paces interval, facing West.
- 2.—Officers will take post in Review Order.
- 3.—(From the Brigadier.) General Salute. Present Arms. Shoulder Arms.
- 4.—Officers will take post.
- 5.—March past (Company Column).
- 6.—Change ranks. March past in Column of Quarter Columns.
- 7.—Form line of Quarter Columns with changed ranks.
- 8.—March past in line of Quarter Columns. Halt. Stand at Ease.

## MANŒUVRE.

- 9.—Officers and Section Leaders will be called to the front.
- 10.—The Brigade will be practised in Attack and Defence. (a) A covering party of a small force, which is landing at the South Point, has taken up a defensive position. (b) A Brigade of Four Battalions is ordered to attack it. (c) The force lands. (d) The attack fails. (e) A counter-attack by the defending force is delivered.
- 11.—The Defending Force will be represented by One Battalion formed in two lines. First Line subdivided into Firing Line, Supports, and Local Reserves. Second Line in rear to deliver the counter-attack when the "advance" is sounded. The covering party will be entrenched.
- 12.—The Attacking Force, which consists of Four Battalions, will attack from the Militia Barracks. The Front will be covered by a Screen of Cyclists.
- 2 Battalions in the 1st Line { In Half-Battalions Quarter Columns  
at Deploying interval.
- 1 Battalion in the 2nd Line—In Half-Battalions Quarter Columns.
- 1 Battalion in the 3rd Line—In Quarter Column.
- 13.—2 Cyclist Sections will extend.  
2 Cyclist Sections in support.  
1 Section will send out the Scouts in advance.
- Cyclists will move as infantry to within 600 yards of the position to reconnoitre, and then clear the front rapidly, mounted and form up in rear of the Third Line.
- 14.—The Brigade will form for attack as follows:—Four Companies of the Battalions in the First Line will extend Two Sections; the Right Battalion will extend its Left Half-Companies; the Left Battalion

its Right Half-Companies; the remainder will form Supports and Reserves.

15.—The Firing Line will just clear the Camp and lie down. The Supports will be on the flanks farthest from the centre of the Brigade. The Half-Battalion Reserves on the same flanks in echelon of Companies or Shallow Columns.

16.—The centre of the Brigade will direct. 6 paces will be preserved between Companies, and 30 paces between Battalions.

17.—On a given signal the Firing Line will make a general advance.

18.—At 800 yards, one or two volleys will be fired by Sections from the centre to the flanks of the Brigade.

19.—The advance will be continued by Sections. The two Centre Sections of the Brigade will advance together, and the remainder will conform; i.e., Left Sections of the Right Battalion; Right Sections of the Left Battalion. The Sections in advance *only* will fire, when halted.

20.—To suit the ground, a large number of casualties (amounting to at least half each Section in the Firing Line, Supports, and Reserves) will be placed out of action. They will give up their ammunition before falling out, and will be formed up by N.C. Officers in rear. The Firing Line will be reinforced by Sections or Sub-Sections, as the casualties occur.

21.—At 500 yards, Sections from the Reserves moved up in support, will reinforce, but *without crowding*. Reserves not absorbed will move in single rank in rear of the flanks of the Half-Battalions.

22.—At 350 yards, Bayonets would be fixed.<sup>1</sup> At 300 yards, Independent firing will commence.

23.—The Second Line, deployed during the advance, and now within 150 yards of the First Line, will assault the left of the enemy's position, passing through the Firing Line.

24.—The Right Battalion only of the First Line will join the Second Line in the assault, and both will halt 150 yards from the position. The other Battalion of the First Line will continue to fire while its front is clear.

25.—A retirement will then be ordered.

26.—The Third Line will have previously taken up a position for defence, as Firing Line, Supports, and Local Reserves, at least 800 yards from the enemy's position.

27.—The Two Battalions of the original First Line will assemble, and will be re-formed in Quarter Column on the flanks.

28.—The retirement of the original Second Line will be by Half-Battalions, covered by Company Volleys. It will clear the front of the Third Line as soon as practicable, and will be formed on its markers in Quarter Column.

29.—When the "advance" is sounded by the Brigade Bugler, the Second Line of the defending force will attack to within 200 yards of the Third Line.

<sup>1</sup> N.B.—As there are opposing forces, bayonets are not to be fixed (Infantry Drill, Part X, 205—4).

30.—No charge will be delivered. On the "Halt" and "Cease firing" sounding, the Two Battalions engaged will be formed in Quarter Column.

## CEREMONIAL.

31.—The Brigade will be drawn up in line of Quarter Columns on its original ground.

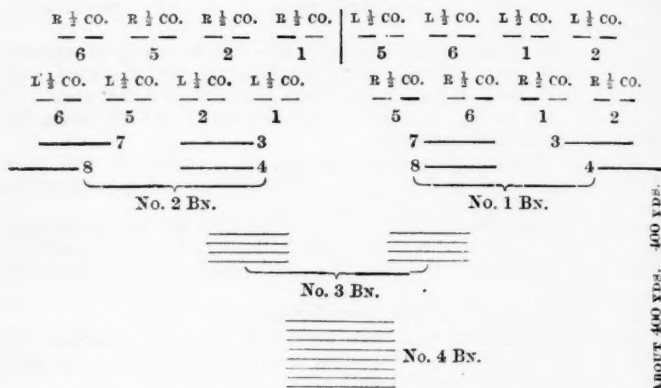
32.—Officers will take post in Review Order.

33.—(From the Brigadier.) Advance in Review Order. Quick March. Halt. General Salute. Present Arms. Shoulder Arms. Order Arms. Stand at Ease.

## SHELTER-TRENCH EXERCISE.

34.—1 Officer, 2 N.C. Officers, and 30 Privates from each Battalion will be detailed for shelter-trench exercise at the times stated in Brigade Orders. The Officers and N.C. Officers detailed for this duty will read Part X, ii, Infantry Drill, pages 244—250. Thoroughly efficient Volunteers only should be selected for shelter-trench drill.

## ATTACKING FORCE.



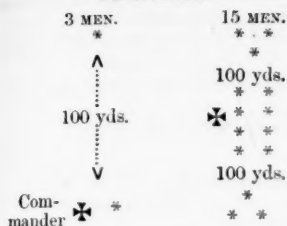
## APPENDIX V.—CYCLIST NOTES.

(Printed on linen.)

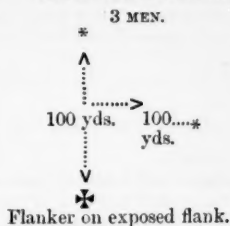
## Patrols.

A Cyclist Patrol will be composed of from three men to the strength of a Section, formed as follows:—

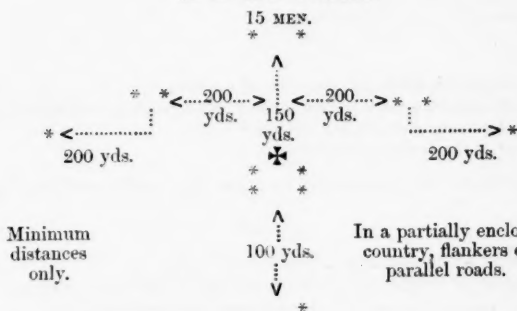
## ON A ROAD.



## IN AN OPEN COUNTRY.



## IN AN OPEN COUNTRY.



In a partially enclosed country, flankers on parallel roads.

## General Rules.

- 1.—Patrols, unless ordered, do not fight.
- 2.—Their object is to find the enemy, to report his position, strength, and movements, and to see without being seen.
- 3.—They must never lose sight of each other.
- 4.—A rendezvous must be named before starting in case anyone gets detached from remainder.
- 5.—No noise of any description is to be made.
- 6.—Go to high ground, have a good look round, and note landmarks by day.
- 7.—By night, get on low ground and bring objects between yourself and the sky.
- 8.—When approaching enemy, dismount and keep out of sight.
- 9.—Never halt in or near a building.
- 10.—If challenged by night, remain still, do not reply. Try and make good retreat.
- 11.—If enemy is seen, signal to commander to come up, and reconnoitre under cover.
- 12.—Never return by the same route you advanced if it can be avoided.

13.—Examine all places likely to afford shelter for ambuscade, and all bridges to see they have not been tampered with.

14.—Frequently halt to observe direction in advance and retreat; at night mark route with broken branch or pile of stones.

15.—If "point," be careful to be quite sure remainder are following you.

16.—Carry a watch, a compass, a map, and a note-book.

#### REMEMBER

About 200 infantry pass a point in 1 min.	} At a walk.
" 100 cavalry, 4 abreast "	
" half a battery of artillery "	
Infantry dust is thick and hangs low.	
Cavalry, fleecy and high.	
Artillery, heavy with intervals.	

#### NOTE

- Strength and composition of enemy.
- If halted, are outposts strong, well posted, and vigilant?
- Position, entrenched or not?
- If main body is near or not?

BE ACCURATE: if you cannot be sure, say "estimated number" so and so.

#### Signals.

To attract attention..... Whistle or horn.

"Advance or reinforce" .. Arms swung from front to rear.

"Halt" ..... Arm raised perpendicularly.

If with cap in hand, applies to enemy thus:—

"Halt" with cap..... Enemy in sight—danger—Signal for commander to come up.

"No enemy" ..... Hand waved across face.

#### FORM OF REPORT.

	From..... (Name, Rank, Regt.).....
	Place.....
NO. OF	To .....
REPORT,	At.....
	Despatched at..... h..... m..... M. 189..
—	Received at..... h..... m..... M. 189..
	Signature of Sender .....
	(RANK.)
	V.Bn.....

Colonel HODSON HOOKE: As Colonel Mayhew's system has been tried in my district, I think he will expect me to express an opinion as to its usefulness and its results. Whatever difference of opinion there may be with regard to the details of his system, I do not think there can be any as to the general principle that he advocates, namely, that there should be a fixed programme for the instruction of the Volunteer recruit. In detached battalions—by detached battalions I mean battalions that have their companies scattered very much in a county—if the

captain does not know his work very well, and I think it very often happens that it is so, or that he is detained by business or social engagements from taking part in the instruction of the recruit, the *onus* of that instruction must fall on the sergeant-instructor; and the question arises whether we can trust him or not. Now, I am afraid to that question we shall have to answer "No." I know many sergeant-instructors that can be depended upon, but I think in the majority of cases they cannot be. Therefore I consider it would be a very good thing to have, as Colonel Mayhew suggests in his able lecture, a fixed programme of instruction that they must follow as far as possible. Colonel Mayhew's system was tried in a town battalion in my district. I visited the squad, a very large one, I think numbering about 120, before the drill commenced, and I also visited it at the end; and I must say that the result was most excellent. But, at the same time, it ought to be borne in mind that we have in that battalion a very good adjutant and a very excellent sergeant-major, the latter one of the best drills out of the Guards. I have not, myself, here, the details of the result of this drill, but Colonel Buchanan, who commands the regiment in question, will, I am sure, supply you with them, and tell you whether this squad of recruits, in comparison with other squads, made a very great improvement or not. Now, with regard to keeping the sergeant-instructors up to date, I most thoroughly agree with the lecturer. I applied for permission, a short time ago, to visit the headquarters of the various Volunteer regiments in my district for the purpose of examining the instructors. I suppose for financial reasons this request was refused; but, at all events, the commanding officers of these various regiments, recognising the importance of the matter of keeping their instructors up to date, and also, perhaps, guided by the advice of the very admirable brigadier of the North Midland brigade, took upon themselves the expense of moving different sergeants to their respective headquarters, where I carried out these examinations. And I consider that these examinations did a great deal of good, and that knowing that they will occur again at certain intervals, it will force the sergeant-instructors to keep themselves up in their work; and I think that all Volunteer commanding officers will agree with me that this is the right thing to do. Examinations are carried out in the Regular Army. They take place at least once a week, where work is continually being carried out. Therefore, how much more important is it that they should also be carried out in the Volunteer Service, where the men have not the advantage of that constant work. As adjutant of Militia I organized an examination of this sort for officers every morning from 10 to 10.30 by the senior major, and it had the most happy results. I do not intend to touch on any details of the system, they will be touched on by others, but I should like to say a word on the subject of tactical instruction. I think the tactical instruction can be, and sometimes is, carried to too high a point. What we have to teach a Volunteer officer is the details. For instance, on outpost duty we have to teach him to post his sentry, and when he has got the sentry in his place to teach him all the duties of that sentry; to teach him how to form a visiting patrol, or a reconnoitring patrol, and teach him how to work it; teach him on the spot how to strengthen a picket-post. All these things are done on the spot to much more advantage than if they are simply learnt from a book. In many of the tactical field days in the North Midland District, where the lecturer has been my companion—I might say to a certain extent I have been his pupil—I have heard officers airily talk about "cutting down trees," about "making loopholes," and "demolishing walls," and I doubt if one out of twenty of them knows how to cut down a tree. It is these little details that I think would be useful for them to learn. I think if the Volunteer officer undertakes these tactical exercises he should be taught how to put a fence, a hedge, a wall, a ditch, a small wood, a farmhouse, or a village into a state of defence, so that if it unhappily came to pass that England was ever invaded the Volunteer officer, without the assistance of the Royal Engineer officer, would be able to convert the country into a sort of fortress.

Colonel T. STURMY CAVE: There is so much that is really excellent in the detail of Colonel Mayhew's paper that I feel some diffidence in making rather sweeping remarks on what I cannot help regarding as the two main principles which underlie it, and which I must say I think are entirely wrong. In the first instance, Colonel Mayhew sets up as a sort of standard the minimum number of

attendances at drill that is laid down by the War Office for grant drawing purposes. I think it is an unfortunate thing that the name "efficient" has been attached to the man who does the minimum number of drills. It is certainly wise to place the minimum number very low, because it clearly would not assist a commanding officer to render his battalions efficient to cripple him financially in every well-regulated corps; in fact, I am sure in all corps throughout the country, nobody looks at the number of drills that is laid down for the minimum as the standard to which they are to attain; it is a great pity that such an idea should be abroad. It seems to be really suggested by Colonel Mayhew that we can really have an efficient force if the Volunteer in the first two years attends 60 drills, and in his subsequent years only 9. I know in my own battalion the number of attendances is very much greater indeed, the average being over 40 for trained Volunteers as well as recruits, and I believe the same may be said of many other battalions. The other main principle which seems to me to underlie this paper, and which I think is still worse than the first, is perhaps best epitomized in the sentence where the lecturer says, "upon the adjutant and sergeant-inspectors would," &c. I am glad that in reading the paper he inserted the word "principally," which is not in the text—"would principally devolve the duty of putting the members through the course just mentioned." I hope I am able to appreciate as fully as anybody the immense value of a smart and efficient adjutant such as I am quite sure Colonel Mayhew was when he occupied that position. With regard to the sergeant-instructors, they are not only very useful, they are absolutely necessary; but to think that a battalion is going to be efficient when it has to receive all, or practically all, its instruction, as is set forth in this paper, from the adjutant and permanent staff, is altogether wrong; however smart it might be on parade, it would not be worth a brass button as a battle unit. What we want to arrive at is that, from the commanding officer down to the subaltern, the officers shall be instructors of their men, and where the adjutant will set to work to instruct the officers, and make them the means of conveying the instruction to the men, I am certain that the battalion will be very much better in every respect than one which may possess the greatest exactitude of drill performance, but which is instructed entirely by the sergeant-instructor. I think there is so much in the detail of this paper that is excellent that these criticisms may seem rather severe, but I am sure that what we want is that the commanding officer, the field officer, and, above all things, the company officer, and N.C.O.s, should be the instructors of their men; and that is the object which the permanent staff should aim at achieving.

Colonel BUCHANAN: As you have been told, I have the honour of commanding one of the regiments in the brigade of which Colonel Hooke has spoken. When the suggestion came from our esteemed Brigade-Major Colonel Mayhew to attempt alterations in our arrangements for drill, especially with regard to musketry, I willingly fell in with the suggestion, being anxious to do what I could to improve the efficiency of the regiment, and I am glad to say the result has been an extremely satisfactory one. In the first place, it called out the willingness to help of the sergeants of the regiment, who were good enough to come to the recruit drill and assist the sergeant-instructors in superintending aiming drill, and in that way they became interested in the recruits from the very beginning. In addition to that, it certainly enabled us to find out which recruits would be likely to be of real use to us. We found that there were men who never would do at all, owing to various circumstances, and those men were dropped. We thus weeded out the men who were least likely to do us any good, and the result was that the remainder proved very satisfactory recruits. I should like to give you two or three facts. In the year 1891, before attempting this arrangement, the average recruit efficiency was 83.99. In the year 1892, immediately preceding the attempt to improve this with Colonel Mayhew's assistance, it increased to 120.01. But in the next year, 1893, we had an increased efficiency, raising the average to 158.82. The result was to place the regiment first in order of merit as regards its recruits in the north-eastern district. With regard to trained Volunteers, we practised the same arrangement, and asked the company officers carefully to select the men who were inferior shots, men who were 3rd class shots, or not good shots of the 2nd class, and to have them specially trained in the same way as the recruits had been



trained in aiming and position drill. The result with regard to the trained Volunteers was almost as remarkable as with regard to the recruits. In 1891 our average for the whole of the trained Volunteers of the regiment was only 151'90. In 1892 we had only increased to 163'83. But between that year and 1893 there was an increase from 163'83 to 201'02, so securing the second place in the north-eastern district, and in marksmen the first place with 205, about 20 per cent. of the whole strength of the regiment. I attribute this result very much to what has been done by Colonel Mayhew, and the assistance given to us by him, and I tender him my most hearty thanks for the help he has given me in seeking to improve the shooting of the regiment.

Colonel J. D. LEGARD : I am sure we shall be all agreed that we are indebted to Colonel Mayhew for a most valuable and interesting paper, one that has evidently occupied a considerable amount of time and thought, and in which it is also quite evident he speaks as an expert, and one who has a special knowledge of the Volunteers. I thought, if I may be allowed to say so, that the separation of trained Volunteers from untrained Volunteers was especially valuable. I think there can be no question that many Volunteers take part in brigade movements in brigade camps who would be very much better occupied in performing a certain amount of recruit drill. I think also that the suggestion that a badge should be given for a successive number of years' good service is of the very highest value, and I really hope it may be adopted. I should like to have seen a little more importance placed upon the training of officers. The point has already been raised by a previous speaker, and I was especially struck with a remark on the necessity of letting company officers take part in the instruction of their companies, without, of course, in any way entrenching on the duties of the adjutant and of the proper sergeant-instructors. I happened, as I was coming down here, to see the concluding words of a paper read in this theatre only last week by Colonel Henderson, in which he says : "History teaches us that courage, numbers, armaments, and entrenchments are of no avail if the troops are badly led, and that the honour and safety of the Empire depend on the skill and knowledge of British officers." I think that points especially to the necessity of well training our officers. We must remember when once a battalion is formed up for attack under the modern system of drill, the actual execution of the attack rests almost entirely with the company officers and section leaders. The commanding officer of the battalion may give the battalion a proper direction, but for the time being it is entirely out of his control, and I do hope something may be done to give greater facilities for the instruction of company officers and non-commissioned officers. I think possibly a way out of the difficulty may be this, that a small grant should be placed under the control of the brigade-majors for the purpose of enabling them to organize instruction at the different headquarters of their battalions. It is almost impossible for many Volunteer officers to give the time and to devote the money necessary to enable them to join a school of instruction. There is one point I would like to notice, that is, how important it is that battalions, when they join a brigade camp, should not require any elementary training. There are many other things which have to be attended to in a brigade camp—the organization necessary to make the brigade an effective portion of an army in the field, such questions as have to do with supply, transport, the feeding of the soldier, the ambulance, and so on. All these matters are of the very greatest importance, and can only be worked out in brigade camp, and if time is to be devoted in brigade camp merely to the learning of tactical exercises, I think our time will not be entirely employed to the best advantage. I will not detain you longer. I merely express what a great pleasure it has been to me to listen to this most interesting lecture, and I really hope every adjutant who has to do with Volunteers will read it, and I am sure that he will acquire from it a great many useful suggestions.

Captain WALTER H. MATTHEWS : I would like to say a few words in answer to one of the former speakers as to the scheme which has been laid before you to-day being cut down too small. We must take things as they are. It is laid down that if a man attends a minimum number of drills—nine—he is considered efficient, and any scheme for the instruction of Volunteers, or the guidance of officers instructing their men, which did not allow for that minimum would be

useless. But I have tried Colonel Mayhew's scheme, and find it is perfectly adaptable to a man attending any number of parades in the year. The scheme is right: The scheme begins at the minimum of nine drills, and is perfectly adaptable to a man attending every parade which any commanding officer chose to call. As to the instruction of the recruits under the scheme, I have tried it for the first time this year under a sergeant-instructor who was exceedingly opposed to it, but has now come round, and says that he keeps the men's attention better, that the men, instead of gaping about, are interested in their work; and he says himself he has never had a better squad. Then as to the instruction of trained Volunteers, I have taken a hint from the scheme, and, instead of trying to teach my men everything during the year, I have kept on one particular thing, beginning at the elementary parts, until I felt that my company knew it. It remains to be proved, but I have no doubt from the manner in which my men do their work that, although we shall go into camp this year not having touched some of the exercises, the commanding officer will find these men far more handy and ready to be taught than if I had run through the whole drill so as to get it all done before camp. I can speak from experience. I began Volunteering in the ranks. I have been at it since I was 14, and I know, when I was on parade as a private and we went through a whole heap of things, the mistakes which we made were not corrected by doing them over again; we went away with a very bad idea of the whole thing. But if the officer commanding a company adopted what Colonel Mayhew suggests, and sees that the thing is not left until it is learnt, that when the men make a mistake over a thing it shall be done again, and be learnt thoroughly, then the men understand what they are doing; and I am perfectly certain that though perhaps the regiment will not cover the Red Book, yet what they do they will learn, and they can be easily turned to other things which they have left undone before. There is one other point raised. I have no doubt my friend has been speaking of a London battalion. He raised objections, I think, to the statement that it was to our adjutant and instructors that we really must look for instruction. No one, I am certain, is more anxious than I am that all Volunteer officers should be perfectly competent to instruct in everything; but we must take facts as they are, and if my friend is in a battalion in which every officer is perfectly capable of instructing, he has a splendid battalion. Until we have got that we must look to the sergeant-instructors. The officers of a regiment are engaged in other occupations during the year. There are many months when we cannot touch the Red Book, and when we come out to drill we must be rusty, but if we know our work we are very soon polished up. But how are we to be polished up unless we have some one to do it? No one would be more anxious than I would be to do without instructors. It costs us about 26*l.*<sup>1</sup> a year to have instructors. I am speaking of a battalion where the companies are 40 miles apart, and where many men have to come in 10 or 12 miles to drill. How are those men to be drilled—and there are none better in the Volunteer force, they are fit to go anywhere, strong, hearty, well-set men—unless their officers have somebody to instruct and prompt them? The officers, I say, get rusty. An officer goes to a school, he gives up a whole month to instruction, but then he has to leave it, and, unless he has an adjutant or instructor who is up to his work, he is bound to get rusty. I am certain that what is meant by the lecturer is perfectly right—that we do look to our adjutants and to our instructors to keep us up to the mark, to keep us from getting rusty, and to instruct those companies where, unfortunately, the officers cannot instruct them themselves. There is just one other thing I might suggest, and that is to carry Colonel Mayhew's idea a bit further as to the examination for non-commissioned officers. I am afraid it is very often the case that the rank of colour-sergeant, being a much coveted rank, is, as a rule, given to the senior sergeant. Now, if it could be established that the rank of colour-sergeant was only to be given on an examination before a Board, and that a colour-sergeant was really an assistant-instructor, I believe we should very materially improve the quality of our colour-sergeants.<sup>2</sup> In a small town, such as we draw many of our

<sup>1</sup> That is 26*l.* per company, about 26*l.* for the battalion.

<sup>2</sup> This would also mean all non-commissioned officers who improve, as otherwise they would have no chance of promotion.

country corps from, if you pass over a fairly good sergeant, it is no good hiding the fact, it does do a lot of damage. The man has influence, and it creates a disturbance; but if it is one of the regulations that no man shall be a colour-sergeant unless he has passed an examination showing that he is fit as an assistant-instructor, I believe we should do a great thing, and we should be qualifying our sergeants to take up the instructor's work when the time came for it.

Colonel Sir W. HUMPHREY: I should like to say one word. First of all I entirely agree with Colonel Mayhew with regard to recruits being put too quickly into the company ranks. I think one of the great evils of the force is that recruits, before they are well set up and thoroughly trained in their squad drill and all the other drills necessary, are allowed to fall in with their company, the consequence of which is they are never properly grounded in their work nor acquire a soldierly appearance, because they never learn it afterwards. I think captains of companies ought to see that every man before he is allowed to join his company is thoroughly grounded in his drill. I also quite agree with Colonel Mayhew's suggestion with regard to the efficiency stripe. What we have now is simply ridiculous as an honour; it is no honour, because if men pass through the minimum drills for efficiency they have the stripe. I think if his suggestion were carried out that in a series of years men should have one, two, and three good conduct stripes, or whatever you like to call them, and having won those, then, after 20 years' service, should receive the medal granted by Her Majesty for long and meritorious service, it would make the efficiency stripe and medal a real honour and much prized. I do not agree with Colonel Mayhew in his suggestion of the instruction of the men being left principally to the adjutant and the sergeant-instructors. I think it is the duty of the officers to make themselves thoroughly fitted to instruct their men, and I think the efficiency of a battalion is mainly dependent on its commanding officer. If you have a good commanding officer you have a good battalion; if you have a weak commanding officer who does not know his work you have a weak battalion, because the officers under him also become lax if they have not a good head. And I think any system which would lessen the responsibility of the officers a mistake. If the instruction is to be left to the adjutant and sergeant-instructors it would tend to make the men think their officers were not capable of instructing them, and their influence in consequence would be seriously weakened. Whereas the men ought to be taught that their officer is the man that they have to look up to. I must say, speaking of Colonel Cave's battalion and the other battalions of my brigade, that the officers do take an interest in their work, and they do know their work—certainly the senior officers—and unless a captain of a company is fitted to do all that his sergeant-instructor is supposed to do, I do not think he is fit for the post. If they cannot instruct it is because they are dull or idle; and I think the sooner you get rid of this sort of officer the better. There is no doubt that the great weakness of the Force is the officers. You have got your men, and I think the men as a rule are now fairly well trained, and they are progressing very rapidly, but there are a certain number of officers who do not take the interest that they ought to do, and work in the way they should. And there the responsibility of the commanding officer arises, because if he has officers who are unfit for their work I consider it is his duty to tell them, "If you do not choose to learn your work I think it would be a very good thing if you were to leave the battalion." That is, I think, of great importance. There was one other matter that Colonel Mayhew spoke of which is not quite correct, and that is with regard to the drills that country battalions are in the habit of performing. He said they only got their battalion drills in camp, but nearly all the country battalions that I know of, and certainly every battalion in my brigade, do many battalion drills before joining the brigade camp, for throughout the year the several commanding officers arrange for the companies of their battalions to meet at places convenient to companies nearest to each other, by which means all the companies in turn get several battalion drills before joining the brigade camp. I should think that what is done in my brigade is probably done in other country brigades too. I repeat, it is the commanding officer who should be held responsible for the efficiency of the officers and men of his battalion.

Mr. SPENSEL WILKINSON: I should like first of all to thank the lecturer for what I think was a practical paper, dealing in a practical way with a practical

subject, and to say I am thoroughly with him in the proposal to have a progressive course both for recruits and for trained Volunteers. I also heartily endorse his view of the great importance to be attached to the thorough training of each individual recruit. But beyond that I feel obliged to part company with him, and to join myself with those who have complained that he rather overlooks the Volunteer officers. I should like to bring two points to bear upon that, first to ask Colonel Mayhew how, if the Volunteer officer is not capable of training his own company, and if in fact he does not train his own company, he can be qualified to take any part in a tactical society? I understand that the foundation of tactics consists, first of all, in the thorough mastery of drill; in the handling of small bodies by their officers, and that upon your fire discipline, upon your skirmishing, and upon that which you practically can do with your men is built up as upon a foundation the tactics which you afterwards learn; but if the officers are not to be grounded in that way in their practical work, it seems to be a chimera for them to attempt to study tactics. I speak feelingly upon this, because I have some experience of it. I think it was in 1876 I first suggested a tactical society, at that time in the Oxford University Corps. That society was a failure, because we none of us understood how to drill and handle men. None of us had the practical knowledge. I learned a lesson from that, and later on, I think in 1881, I started a tactical society in Manchester, where we had a corps of officers who worked and who practically drilled their own companies. That society was a success, because no officer was a member there who was not himself in the habit of working his own company and drilling it, training it, and manœuvring it on the ground. That society not only learned something but it did something, for we had in those days an old-fashioned commanding officer who pooh-pooled us when we began to study the tactical text-books, but we converted him. After we had been working a year or two, he came to the conclusion that we who were in this society (which did not include the whole regiment) were the practical men in the regiment, and that those who had looked down upon the theory as not being practical were not the practical men. I should be greatly obliged if Colonel Mayhew will explain what use his tactical society is going to be to men who do not know their practical work. As regards a second point, whether you are to instruct the Volunteers by first instructing the officers, I should like also to give a piece of practical experience. It is many years since I first proposed that there should be a progressive course, just as Colonel Mayhew has done, and I was greatly rejoiced when an adjutant came to the battalion to which I belong who tried to introduce such a course. He was perhaps the smartest drill and the best instructor I ever knew. But he started on the theory that it was all going to be done by the adjutant and staff-sergeants. What was the result? The officers, who would have taken a pride—every officer in drilling and training his own company—found their responsibility, their opportunity for practice gone; and after four years the battalion, though it was most admirably drilled, was perfectly helpless when put to manœuvres, because the officers had lost the practice, they had lost the habit of leading their men; and the adjutant himself said to me when he left—the point had often been argued between us during his service with us—"I made a mistake when I came here, I thought I could make a battalion, and I worked very hard, as you know, but I see now I went the wrong way about it. I ought to have tried to get hold of the Volunteer officers, and to have taught them." I do not wish to appear to be controverting Colonel Mayhew's views, but I want to put some practical experience before him, with a view of asking him to explain himself a little more fully on what is evidently a crucial question.

COLONEL MAYHEW: As time presses, I will only touch very lightly on the remarks which have been made. Colonel Cave, Sir William Humphery, and Mr. Spenser Wilkinson seem to have attacked my proposal root and branch, and I am afraid I expressed myself very badly in my lecture. I do not wish to depreciate the work of the good Volunteer officer in the least, but I said the duty of putting the men through what would correspond with the commencement of the military training in vogue in the regular forces would mainly devolve on the permanent staff. It would, for this very good reason, that sometimes the Volunteer officer cannot be present, however good he may be. Business takes him elsewhere. Who then is

going to drill the men? Another point is this, I merely said that Volunteers in their minimum number of drills—in their *minimum* number remember—should go through a progressive course. Well now, if anybody tries to work this out, and I have tried to work it out myself, they will find that there will be a certain number of what you may call “casuals,” viz., men who have not attended the drills under their officers, or under the staff sergeant, and those men must be drilled by themselves. When I was adjutant to a battalion, and I am glad to say my old commanding officer is here now and can vouch for what I am saying, he used to take half the battalion and I used to take the other half, and I generally managed to get all the untrained Volunteers into my half. I did not wish my commanding officer to be burdened with men who did not know their drill, that was part of my duty. If sergeant-majors’ parades are necessary for Her Majesty’s Guards, how much more necessary must they be for partially trained corps like the Volunteers. The third-class drills in Her Majesty’s Foot Guards are put on one side and trained by the sergeant-major and licked into shape until they become first-class drills. Why should we not do the same thing with regard to the Volunteers? That was all I meant to point out in my lecture. There is no one who would welcome the training, I mean the better training of officers, more than I should myself. If we could only get classes for officers it would be the most excellent institution we could possibly have, but we have not got them and we cannot get them. Officers will not go to the expense, and could not go to the expense, of coming, we will say, 30, 40, or 50 miles to hear a brigade-major talk to them. Unless there was some Government arrangement by which grants could be given for officers to travel, even to the headquarters of their own corps, it would be practically impossible for any of these classes to be formed. Therefore, we must take things as they are. Those officers who are qualified to instruct their men let them instruct them by all means. Let them take their recruits from the first day, let them drill them through their 60 drills every time they come to parade, and go through the whole curriculum, and finish up if they like with Home, Clery, or any other book that they might select and study military subjects in all languages under the sun. There is no one who wishes to depreciate the work of Volunteer officers. But there are officers who do not know their work, and if they cannot train the recruits there are other people appointed by Government who can. These people must train both the recruit and the trained Volunteer. I do not think there is anything else that has been brought to my notice. Mr. Spenser Wilkinson has proved what I said, that when the officers do know their work and can instruct their men, then they are better able to understand tactics, and those are the only men who really ought to go in for tactical examinations at all, because, as we all know, military operations commence with drill and go on to tactics afterwards. There is only one other thing I should like to say, and that is to thank you very much for your very kind attention, and if you will allow me to thank Sir Francis Grenfell in your name for having presided here to-day.

The CHAIRMAN (Sir Francis Grenfell): Gentlemen, before I make any very short remark on the lecture, I think that we might notice the kindness of the Council in altering the time from 3, which a good many of us felt very inconvenient, to 5 o’clock, which I think we may say to Volunteer officers, and to officers employed in various offices, is a much more convenient hour. I regret to hear that by an unfortunate mistaken announcement of the hour in a newspaper a good many officers came at 3 o’clock and went away again. I think 5 is a good hour for lectures connected with Volunteers, and we have a sufficiently good muster to thank the Council for their kindness, and to justify them in conducting these lectures at that hour. With regard to the lecture itself, we are very grateful to Colonel Mayhew, and I think a very interesting discussion has been raised. But curiously, and I watched it with great interest, it was not at all on the lines that I had expected. I thought that gentlemen would have criticised the programme which has been given, and perhaps have mentioned some other method of drill or some other instruction that might have been given. I think Colonel Cave rather drew a red herring over the line when he started the question of instruction by officers instead of instruction by the adjutant and the permanent staff. I must say I do not see in the lecture anything except

one remark which leads one to suppose that Colonel Mayhew intended that the instruction should be taken out of the hands of the officers, but we all know, as he has said, how very difficult it is for Volunteer officers to get away from their civil duties, and in many corps how very few Volunteer officers there are. A great many corps are very short of officers, and we must assume, I think, that the early course of instruction of recruits must be to a great extent carried out by the permanent staff. I was rather surprised—Captain Matthews certainly did mention it—that we have heard no one else mention the Volunteer non-commissioned officers. We see the battalions and brigades on parade, but it is very seldom that we ever have the opportunity of seeing them instructed. I do hope, however, that in the Volunteer force the sergeants of the Volunteers have something to do with the instruction. We must remember that these are the section leaders: these are the men to whom the rank and file have to look. In these present days when your front is so extended—perhaps a battalion will stretch over half a mile of country—the officer can give only a general supervision, and the actual fighting unit is under the command of the non-commissioned officer. Therefore the more the actual non-commissioned officer of Volunteers is brought in connection with the men of his company the greater value will be derived from his instruction. I must say I think a fixed programme, whatever it is, is of great advantage, and we have had the testimony to-day of Colonel Hooke and Colonel Buchanan, and a very strong and able speech from Captain Cave, showing that in this particular brigade this system has been a great success. I think it would be a very great advantage if inspecting officers when they go their rounds and when they see the battalion, I am afraid only for a very short time, could find out what the system of instruction of recruits is in the regiment, and see at any rate that there is some definite system, or some definite programme for instructing the recruits, and with that view it certainly is very valuable to have some definite course laid down. It may be we have something now in what Colonel Mayhew has given us and which may be of great assistance in many corps. It may be altered according to the wishes of commanding officers, but still a definite programme is, I feel sure, a very valuable thing. There is one important question, which is the encouragement of men who attend a large number of drills. I quite agree with Sir William Humphery and the lecturer, and I think everybody who spoke is of the same mind, that the efficiency badge now is so common that it really has become worthless, and I should be very glad indeed if it would be possible that some arrangement, such as that proposed by the lecturer, could be carried out whereby the men who really do work should meet with some encouragement. We know that there are a great many men in battalions who do attend an enormous number of drills, but there is nothing on their uniform to show that they have attended anything more than the absolute nine drills that are required. This point struck me very much, and I certainly shall make a proposal, and I hope it may be possible in some way to carry out the idea. Though we have perhaps disagreed about the mode of instruction, I am sure we all agree on one thing, that we are very grateful to Colonel Mayhew for his kindness in taking the trouble to prepare and deliver this lecture this afternoon. It has proved very fruitful as inducing discussion, and on your part, gentlemen, I beg to thank him most sincerely for his kindness in coming here.

Wednesday, July 4, 1894.

VICE-ADMIRAL PHILIP A. COLOMB, in the Chair.

A NEW METHOD OF MANŒUVRING "CONTROLLABLE"  
TORPEDOES OR OTHER VESSELS WHEN ABSOLUTELY  
INVISIBLE TO THE OPERATOR.

By LIEUT. C. W. SLEEMAN, R.N.

THE contrivance which I bring to your notice to-day has been the outcome of a mass of difficulties experienced during a five years' wrestle with the "Nordenfelt" electric controllable torpedo before I succeeded in overcoming its obstinate disinclination to run for any considerable distance without diving, or trying to dive, or otherwise misbehaving itself; other difficulties, of course, arose in connection with the electric motive power, but these were practically a mere nothing compared with the peck of troubles brought into being by the necessity that then existed for a controllable torpedo to be provided with some arrangement whereby its course through the water during the whole of the run remained visible to the operator directing it.

In 1887, when the "Brennan" torpedo was just emerging from its state of infancy, and after many attempts had been made to run it without hampering its movements and general handiness by fixed excrescences, such as fins, floats, masts, &c., Mr. Brennan expressed himself, according to the "Army and Navy Gazette," as not being hopeful that a contrivance would ever be found to supersede the present system of running "Controllable" torpedoes, which remark added fuel to the flame of my desire to attempt to solve this apparently knotty question.

I do not for a moment wish it to be understood that by means of this apparatus I have solved this problem, but, as a practical torpedoist, I believe most thoroughly that this contrivance is a step in the right direction, and well worth trying in connection with the "Brennan" or any of the other "Controllable" torpedoes.

Before proceeding to explain the apparatus, it will be as well to briefly consider the leading features of known controllable torpedoes in so far as they are affected by the invention I am bringing to your notice.

So far as this paper is concerned, torpedoes may be divided into two distinct classes—"Uncontrollable" and "Controllable"—the former represented by the "Whitehead," the "Schwartzkopff,"



and the "Howell;" the latter by the "Brennan," the "Sims-Edison," the "Patrick," and the "Nordenfelt."

The essential difference between the two classes is that the former, like a shot from a gun, is absolutely removed from all control the instant it is started on its errand of destruction, while the latter is always under the more or less complete control of its manipulator during the whole time of running.

We have nothing to do with the former class to-day, and so it will not be necessary to consider it further.

What is intended by "Control," in reference to the second class, is that by means of certain devices, placed within the torpedo, its propelling engine can be started and stopped, its rudder moved to port or starboard, its charge fired by contact or "at will:" all these functions being performed as it may so please or as they may be required to be exercised by the operator.

These various devices are actuated by electric currents transmitted from the operating point through a cable (composed of two or more insulated cores) coiled up in, and payed out from, the torpedo as it proceeds ahead.

This description does not quite apply to the "Brennan," as it is *mechanically* not *electrically* controlled, but the principle remains the same.

The operator possesses a more or less complete directive control of this class of torpedo by means of some thing or things forming an actual part of the *particular* torpedo in hand, which renders its position always visible to him, and by means of which he is thus enabled to maintain the torpedo in alignment with the vessel or other target it is desired to strike. Now, for any such torpedo to achieve *complete* success, it should be submerged at least 6 ft. beneath the surface of the water for the purpose of securing to its charge the maximum of destructive effect as well as to bring the explosion below the armoured belt or deck of the ship it is intended to cripple or sink. To provide for these two requirements, a *visible means for guidance* and a *sufficient depth of submergence*, the "Sims-Edison" is fitted with a fore-and-aft float rigidly attached to its hull, and so formed as to permit of the torpedo being driven under a boom or other similar obstruction placed in her path; this float allows of the hull being submerged some 5 ft. under the water; at each extremity of the float is hinged a small steel rod carrying each a flag or disc, the foremost one showing above the after one. This torpedo is shown at Pl. I. The "Patrick" has for the same purposes a float somewhat longer than its hull, exceptionally light and fine in structure; the visible means for its guidance are similar to those adopted in the "Sims-Edison." This torpedo is shown at Pl. II.

The "Nordenfelt" differs, or rather differed, as it is now defunct, from the foregoing in having two separate fins, one at each extremity of its hull, each fin carrying a rod and disc as seen at Pl. III.

These three torpedoes maintained regularity of submergence during a run by means of their floats, but the "Brennan" differs from them in that it uses the "Whitehead" system of submergence, and so only



requires to employ something, as, for instance, a thin telescopic steel mast, to provide it with the necessary visible means for guidance. This torpedo is shown at Pl. IV.

I feel almost bound to apologise for having to claim attention for what must be a very old story to many of you, but when a contrivance has been devised to do away with a something in common use, it is necessary first of all to set up that something for the express purpose of knocking that something down.

In this case the something is the mast, float, or fins by which, alone, at the present time, a "Controllable" torpedo is rendered possible, and it is with the object of removing this something bag and baggage that I have devised my system for guiding a controllable torpedo or any kind of vessel whose course is invisible to the operator directing it.

The four controllable torpedoes I have specially referred to have been chosen as exemplifying the two types of that class of torpedo, and all of which have been subjected to official trials in this or other countries.

Before going on to describe my system of directing Controllable torpedoes while invisible to the operator, I will point out what I consider to be the disadvantages that are common to this class of torpedo requiring visible means for its guidance, whether in the form of a mast, float, or fins, and carrying one or two flags or discs—

Loss of speed.  
Exposure of attack.  
Unhandiness.  
Easily stopped.  
Limitation of range.

*Loss of Speed.*—That a very serious loss of speed must result from the employment of means such as I have described for providing a "Controllable" torpedo with the necessary means of *visible* guidance is self-evident. In the case of the "Brennan," for instance, which, with its slender steel mast, offers the minimum of sacrifice of effectiveness in this respect, there is a loss of speed of some 4 knots per hour.

*Exposure of Attack.*—Here again it is perfectly obvious that either of these torpedoes must play to some extent into the hands of the enemy by reason of the disturbance created on the surface by the passage of the mast, float, or fins through the water, the degree of exposure depending on the speed of the torpedo, size and form of the particular excrescence, and the state of the surface of the sea at the time; while, unless a very strong wind be blowing *from* the enemy at the time of the attack, there is a great probability of the approach of the torpedo being discovered by the noise that must attend the tearing through the water at high speed of whatever form of excrescence is resorted to. I am aware that a torpedo attack of this sort will rarely be attempted in broad daylight, but even on a dark night the foam and spray thrown up by either of these torpedoes as it cleaves its way through the water would, by means of her electric

lights, afford to the enemy all that was necessary to indicate its approach, and most probably in time for her to avoid the attack.

*Unhandiness.*—It cannot well be denied that any form of mast, float, or fin rigidly attached to a torpedo renders her unwieldy and difficult to handle as compared with the same sized weapon unprovided with and not requiring an excrescence of this nature.

*Easily stopped.*—The "Brennan," "Patrick," and "Nordenfelt" torpedoes could certainly be very readily brought up and probably sunk by means of an anchored boom, while, though the "Sims-Edison" has been proved capable of charging an obstacle of this nature without suffering any material harm, yet a slack chain cable hung under the boom, or a strong wire net suspended vertically from and rigidly attached to it, would most effectually bring her to a standstill if no worse thing happened.

*Limitation of Range.*—All "Controllable" torpedoes, whose directive visibility begins and ends with one or two small flags or discs, must have their range of action very circumscribed, putting the other causes of limitation on one side, compared with the distance from the operating point that the object of the attack (a ship of war) is to be seen; and it will be readily understood that these guiding stars must of necessity be as small as it is feasible to have them, so as to reduce to a minimum the chances of an enemy discovering the approach of the torpedo by their means.

This detailed statement as to the numerous and very serious disadvantages attendant on the use of masts, floats, or fins for enabling a "Controllable" torpedo to be manœuvred, cannot, I venture to say, be controverted; in fact I might have added to the list of indictments, but sufficient has been said to support my contention that any contrivance having a reasonable show of possessing a practicable application, devised for the express purpose of improving off the face of the sea the external excrescences now carried by the unfortunate hulls of the "Controllable" torpedoes of the present day, is worthy of serious consideration, and, if there be aught in it, of the expenditure of brains, time, and money in making it successful.

I will now proceed to explain my electrical steering invention, prefacing the explanation by a reference to other attempts that have been made to adapt compass steering to torpedoes, more especially in connection with the "Whitehead." Commander Barber, of the United States Navy, in a lecture on the "Whitehead" torpedo, in 1874, refers to Gunner Burdett's proposed plan of steering a "Whitehead" by means of a compass placed within her, and so arranged that the torpedo going off the point of the compass for which she was previously set to run on would, by a simple electrical device, automatically put the rudder over to bring the torpedo back to the original point.

It hardly needs to be pointed out to any one at all conversant with the art of steering a boat that this method cannot insure a torpedo fitted with it being kept on a *steady* course or on a *constant* alignment. By my system the movement of the rudder of the vessel or torpedo is *absolutely* independent of any alteration of the vessel's course. I

merely provide the vessel to be directly controlled by this system with a compass capable of indicating to the operator by an electrical device the actual point of the compass that she may be heading at any given moment, or of any alteration therefrom; in fact, the operator of such a vessel (invisible to him) is in practically the same position as though he were on board of her, with the compass in front of him and the helm in his hand.

If it is required to keep the invisible vessel on a given course, and she, for any reason, should go off that course, the operator can then, by using the rudder, bring her back to her original course, and not only that but on the same line or alignment again. For instance, supposing it is desired to run the vessel on the E. point of the compass and she should run off to E. by S., then the operator merely has to give her starboard helm swinging her to E. by N., and then with a touch of port helm bring her back to the E. point again, thus correcting the bodily drift to starboard that would result had he merely straightened her up on the E. point in the first instance.

Fig. 5 is a plain sectional view of a compass, D is the compass card, S the spindle carrying the card, A is a metal arm with platinum contact point; B is an ebonite ring with 32 insulated metal contacts, which engage respectively with A as the compass card and A swing from point to point; E are the supports carrying the ebonite ring.

Fig. 5a shows in plan the compass C, the step-by-step instrument S, relay R, and battery M contained in the torpedo, and of the key K, galvanometer G, and batteries N and N' placed in the station. In the drawing only eight points are shown, and only five connections—N., N. by E., E., N.W., and W.—to avoid confusion. The 32 contacts on B are connected by insulated wire to 32 contacts on the step-by-step instrument. The arm T of the "step-by-step" is moved to the right or left by the battery M, which is brought into action by the relay R. The movement of the relay R is controlled from the station by the movement of the arm T' of the key K, through the line wire marked "LINE." The galvanometer G circuit is completed (with T' of K on any point of the compass) when the contact arm A of the compass is on a similar contact to that of the arm T of S (as shown in Fig. 5a), the galvanometer needle is then deflected, and remains deflected as long as the combination remains. The galvanometer circuit is broken, and the needle resumes its normal position on the compass card, swinging off so as to bring another of the contacts of the ebonite ring B in contact with A; or if A and T be in continuity by the movement of T' of K off whatever point it may be on. The movement of T', as it leaves its points, breaks the galvanometer circuit, and completes the relay R circuit on approaching the next point on its dial, the relay circuit is broken, and the galvanometer completed, but the needle of G is not deflected unless at the same time the arms T and A in the torpedo are on the same contact.

Every movement of T' of K causes T of S to be moved one step to the right or left in correspondence with T' of K, so that the key

arm T' and the step-by-step arm T' work in unison, and the galvanometer be deflected whatever point T' be on is the point of the compass on which the torpedo is then heading.

Having thus described the construction of the contrivance I will proceed to show how it is applied in actual practice.

Suppose a torpedo fitted with this arrangement to be lying at rest in the water ready for running, with all the necessary connections made and the contact arm of the *station* "key" instrument and of the "step-by-step" instrument in the torpedo on the same point of their respective dials, say the N. point, and suppose that she be heading S. (a fact that would probably be known to the operator), then the operator would move the *station* key arm, and consequently the "step-by-step" pointer step-by-step until they have respectively reached the S. point, when, as the torpedo is also on the S. point, the galvanometer, as before explained, will be deflected, and will remain so deflected as long as she continues to head S. Having thus established the direction the torpedo is pointing, and it being desired to run her on, say, the E. point, the operator will move the necessary key to start the engines of the torpedo ahead and at the same time the key to give starboard helm, he would then move his "key" arm one step to the left, watch the galvanometer, and, on seeing the needle deflected, move it another step to the left, and so on, thus following the course of the torpedo as she swings from S. to E., so manipulating the helm as to steady her on the course E. it is desired to run her on.

All the operator has now to do is to watch the galvanometer if the needle ceases to be deflected, then he knows that the torpedo has run off her course E., but whether to the right or left of it he does not, of course, know. It would be necessary to have a fixed rule in this case: for instance, to always give "port" helm, so as to cause the vessel's head to be moved to starboard, or to the right of her original course, and at the same time to move the *station* key arm *two* steps to the right of the point the vessel is being run on, in this case E.S.E.; the operator would then watch for the deflection of the galvanometer needle, which would occur on the "port" helm previously given to the torpedo, bringing her head to E.S.E., two points to the right of E.; the length of time this would occupy would depend on whether the torpedo, on going off her course, had gone to the right or left of it; on seeing the needle deflected, the operator would then so manipulate the helm as to bring the torpedo back to her original point and on the same alignment.

This is the whole of the operation, which is, as you will notice, merely a matter of steering, and I think you will agree with me that it is very simple.

I have only been able to make one practical experiment with my apparatus, on which occasion it was fitted up in an ordinary steam launch, and I found, to my great satisfaction, that I could follow the launch point by point as she steamed round in a complete circle, keep her on a given course, and find out the direction she was heading in when she had been purposely steered off her course. Naturally I

experienced some difficulty in manipulating the apparatus at the first time of asking, and I quite admit that this trial did not present the difficulties that will most certainly occur when the opportunity comes for such a contrivance to be tried in connection with a real live "Controllable" torpedo, but, at the worst, it will be only a question of steady practice, and trouble in such a case is but the common experience of the initiatory stage of the development of new-born ideas, whether it be a little bit of humanity in the shape of a babe, or a little bit of an invention in the shape of an improvement of some existing inanimate apparatus.

This system of steering has been subjected to close, not to say severe, examination by many experts, so that I am enabled to place before you a list of objections that have been raised by these experts from time to time.

First and foremost I was assured that the amount of power possessed by a compass card to do any mechanical work was so infinitesimally small that a hair would stop its action; well this, to some extent, is true, if the hair has to be moved at the extreme outside edge of the card, but the nearer to the centre the work has to be done the coarser and heavier the hair may be, and that is the reason why the ring of "compass" contacts should be of as small a diameter as it is feasible to construct it, while the arm of the contact maker on the spindle of the compass card should be as light as possible, with the object of reducing to a minimum the increased friction of the card pivots; similarly, the actual contact must be delicate, with due regard to a certain and definite contact being always maintained. There is no insurmountable difficulty in securing these desiderata. I quite admit that setting a compass card a job of work to do over and above its normal business will, to a certain extent, though hardly appreciable, impair the efficiency, but, in connection with this, it must be remembered that it is not a question of steering a ship across the Atlantic, for instance, when, of course, a compass, however slightly impeded in its action, might cause a serious disaster, but only running a "Controllable" torpedo or other such vessel an insignificant distance as compared with the former. Further, the small extent by which a compass may be thrown out by utilizing it for the purpose of this contrivance would be a fixed quantity, provable by practice, and correctable by adjustment.

Secondly, it was assumed that the small current passing through one of the wires connecting the compass and step-by-step contact would affect the action of the compass card; but this is not the case, and, were it so, would assert itself at once by visible demonstration, as, with the galvanometer current passing along one of the wires, the compass card would move one way or the other.

Thirdly, objections have been raised as to the action of a compass in a steel torpedo; unquestionably a compass in such a situation would require careful adjustment, but by insulating the compass the amount of adjustment would be reduced to a minimum.

Anyhow, supposing this system to be otherwise a valuable one, it would surely be worth while to construct torpedoes, in which it is to

be used, of aluminium or other non-magnetic substance, or a form of gyroscope could possibly be used, as has been successfully applied to the French submarine boat the "Gustave Zédé."

Fourthly, the need of a "step-by-step" instrument in connection with this system of steering has proved a bugbear to some of my critics, because of their disbelief in the possibility of securing certainty of unison between it and the station "key" instrument. I know that "step-by-step" instruments, like most things, are liable to error, either by jumping *two* steps for one movement of the "key," or by not moving at all when the "key" is moved; this is, however, purely a matter of mechanical construction, by no means presenting any insuperable difficulty. Then, if it be necessary, by utilizing the telephone the fact of the two instruments being in unison or not can be easily ascertained. In connection with this objection I would point out that in actual practice, that is to say, when making an attack with a torpedo to which this contrivance is applied, I do not see any strong reason why the "step-by-step" instrument should be moved even one step when once the torpedo is set on her course; I refer to a torpedo truly constructed and provided, as in the case of the "Whitehead," and also, I believe, the "Brennan," with two propellers, revolving in opposite directions; for, under such conditions, there is no reason why a torpedo should of her own sweet will go out of the course she is set to run on, excepting that the unexpected always happens. In the experimental and showing-off stage a torpedo fitted with this system would doubtless be expected to perform all sorts of antics.

This completes the list of what I have so far been told are the weak points of this steering apparatus, and I trust I have shown that at least they are not ineradicable.

I now come to the second part of my scheme for doing away with masts, floats, fins, and all such abominations connected with the manœuvring of "Controllable" torpedoes. It was my good fortune to get Admiral Colomb to devote a considerable portion of his very valuable time in examining into my scheme, and after expressing his qualified approval of the contrivance from an electrical and mechanical point of view, he propounded the following, I need hardly say, practical question: "What means have you for knowing the position of the torpedo as regards the enemy and the operator at any point of its run?" In other words, the Admiral said you may be able to keep a torpedo by means of this invention on a given course, but, as it is invisible to the operator, that is possibly very interesting; but you must have in addition some means of verifying her actual position at any given moment.

I was pleased to be able to show Admiral Colomb that I had foreseen this requirement at the very outset of designing my system of steering.

So far as controllable torpedoes are in question, provided with a submergence system such as the "Whitehead" possesses, it would be a very simple matter to arrange for the immersion and emersion of the torpedo at the "will" of the operator; the torpedo could then be

run on the surface as near to the point of attack as is considered advisable, and at that point immersed, completing the remainder of its course in the submerged or invisible position; this would very materially lessen the chances of a miss, owing to the torpedo having bodily drifted out of her course by the influence of the tide or otherwise. At first blush it would seem that, under this condition of controlled submersion, a steering contrivance such as mine would not be needed; this, however, is not the case, because it would be extremely unlikely that the torpedo on being dived after, after having been brought to the surface, would maintain the direction she had previously been running on; while, suppose the torpedo to be proceeding in the submerged condition, and it be desired to bring her to the surface for a "look see," it would be found very difficult to pick her up at once, even by the aid of binoculars, unless, by means of a steering contrivance, she had been kept all the time on a known course, and so her whereabouts well within the operator's ken.

If, however, it be required to run a torpedo having this contrivance on board in the submerged position for the complete course, that is to say, invisible alike to the operator and the enemy, I have provided an arrangement which I will now describe, part being by no means new, or of my own discovering.

The arrangement consists of a board shown at Pl. IX, and torpedo path instrument, Pl. VIII. At Pl. IX, A and B are two stations at a fixed distance apart, C and D are parts of circles with A and B as centres respectively.

The torpedo path-finder, Pl. VIII, consists of a framework, F, F', carrying an endless screw, E, and sleeve, E'; on the sleeve is fixed a model of a torpedo, surmounted by a compass; the endless screw E is caused to revolve, carrying the sleeve, torpedo, and compass with it by clockwork or other suitable mechanism at H; the rate of progression of E' is proportionately the same as the rate of the actual torpedo in the water, so that a scale of distance placed on F affords an indication of the distance travelled by the unseen torpedo at any moment of its run, both the mechanism at H and the torpedo being started at the same moment. By means of the arrangement previously explained, the actual direction in which the torpedo is heading is indicated to the operator, and with the "path" instrument placed on the board, Pl. IX, the path of the torpedo in the water is thus shown on the board. Should the torpedo's course be altered the "path" instrument is similarly altered, it always turning on a pivot under the moving sleeve; thus at Pl. IX the shortening up of the length of run possible on a straight course to a controllable torpedo by large alterations of course is also indicated. Pl. X represents part of a coast line, with an enemy's ship passing down; A and B are the observing stations, with cross-bearing instruments. Pl. VII is an arrangement for obtaining correct point of intersection of the two cross-bearing lines, for use with board, Pl. IX. B, Pl. VII, is arranged to work on the inner circle C, and carries a number of prickers, kept just clear of the board by springs; A is similar to B, without the prickers, and arranged to move on the outer circle D, and just clear



of top of A. The bearing of the ship having been given from cross-bearing station A, Pl. X—B, Pl. VII, is moved to that bearing; similarly, A, Pl. VII, is moved to the bearing given from the station B, Pl. X, then a slight pressure on the top of A, Pl. VII, will cause the pricker or prickers under it in B to move the board; if only one mark, that is the point of intersection; if two marks, the centre of them; if three marks, the centre one, and so on. In combination with the board, Pl. IX, the torpedo path-finder, and the cross-bearing markers, there is also provided a set of circles inscribed on a transparent card, the distance between the circles (drawn from same centre) representing on the same scale the distance travelled by a ship at different speeds for a given time, say, 3 mins. Suppose cross-bearings of the ship S, Pl. X, be taken, and her position marked on the board, Pl. IX, and then 3 mins. afterwards cross-bearings again taken of the ship S', and her position marked off on the board, Pl. IX, then, the centre of the speed card being placed on the first position, whatever line is cut by the second position represents the speed of the ship. Thus the board, Pl. IX, shows the position of the ship, and her course, while her speed is also known. The position of the torpedo at the starting point is also marked on Pl. IX. In Pl. X the ship S is moving at 10 knots per hour, and the torpedo is supposed to travel at 20 knots per hour. The torpedo path-finder is placed with the sleeve pivot on the starting point of the torpedo on the board, Pl. IX, and in same direction as the torpedo is heading, which is known to the operator by the compass steering system previously described. Further cross-bearings of the ship may be taken from time to time, so that her path is shown on the board, Pl. IX, while by the path-finder, Pl. VIII, placed on the board and kept in unison with the torpedo course, the operator, without seeing the torpedo, sees before him the position of the ship and torpedo at any part of the attack. This scheme has been devised as showing one way of utilizing my compass-steering invention.

In brief, this arrangement is an indicator board, on which I am enabled to show, by means of cross-bearings and certain other devices, as explained, the distance of the enemy from the "station," together with her speed and course; while on the same board the actual track of the torpedo is exhibited, so that at any point of the run the relative position of the torpedo and the enemy can be readily noted by the operator. Such a scheme opens up an infinite number of arrangements, only to be definitely settled in actual practice.

The bodily set, due to tidal influence, of a torpedo fitted with this or any other system of steering which renders her course invisible to the operator cannot be observed, but as such would invariably be used in places perfectly familiar to the conductors of the attack, due allowance in the course set for the torpedo to run on could be made to counteract this tidal influence.

Personally, I should prefer, in manœuvring a torpedo on this system, to be in a position to bring her to the surface from time to time so as to insure her being in proper alignment; even so, the indicator board arrangement would be invaluable.



Having now initiated you in the mysteries, if there be any, of my system of steering controllable vessels which are guided by sense, not sight, I will point out some of the directions where the system may be advantageously employed.

The adoption of this system in the case of the "Brennan," "Patrick," "Sims-Edison," and "Nordenfelt" controllable torpedoes would very materially enhance their value as weapons of war for coast defence purposes.

The "Brennan," by being able to do away with her mast, obtains a higher speed, complete invisibility, handiness, and cannot be stopped by a boom.

The "Patrick," "Sims-Edison," and "Nordenfelt," being freed of the encumbrance of their floats, secure higher speed, greater submergence, complete invisibility, unlimited range, handiness, and cannot be stopped by a boom.

It will be noticed that I score an additional point, *unlimited range*, for the latter weapons. I mean that the striking range of either of these torpedoes need not necessarily depend on the length of cable carried by them, as, not requiring to be seen to be guided, they can be towed to any distance from the station, and then started from that point. The towing boat would carry a reel of cable, similar to that in the torpedo being towed, paying it out as she proceeds, and, on arriving at her destination, the two cables would be connected up together, thus establishing direct communication between the station and the torpedo. A separate single-core cable would provide for telegraphic or telephonic communication between the operator at the station and the occupants of the towing boat.

It is very possible that a similar arrangement could be devised for the "Brennan," when her present somewhat limited striking range could, with this system of steering, be very considerably increased.

*Uncontrollable Torpedoes.*—It has always seemed to me a great pity that no serious attempt has been made to utilize the potentially valuable features of the "Whitehead" and the "Schwartzkopff" by transforming them into "Controllable" torpedoes, and so eradicating, once for all, their one grave defect, viz., "Uncontrollability."

By aid of this system of "directive" control it is possible to construct a controllable Whitehead or Schwartzkopff; that is to say, a torpedo differing only from an uncontrollable Whitehead or Schwartzkopff in the addition of the apparatus necessary to provide it with "directive" control. The extra weight, inclusive of 1,088 yds. of cable, would come under 100 lbs.—so there is no reason why a controllable Whitehead or Schwartzkopff should not be constructed very little, if at all, larger than the present ones, provided that some of their very high speed be sacrificed.

I show at Pl. XII a full-sized drawing of a coil of 1,088 yds. of cable, and the weight of water occupying the chamber containing it is not more than 50 lbs., also a 20-ft. Whitehead discharging tube with this cable chamber above it on same scale.

*Sea Service Controlled Torpedoes.*—In considering the application of my system of directive control to controllable torpedoes intended for

use in ships or torpedo-boats, it will be necessary to treat of them in two distinct classes, viz., short range and long range controllable torpedoes. In the former class I place a Whitehead or Schwartzkopff torpedo provided with my system of directive control, having a range of 1,000 yds. and a speed of 20 knots. In the latter class I include all controllable torpedoes provided with this system of control, having a range of 3,000 yds. and a speed of 20 knots.

*Short Range.*—The mode of conducting an attack with a short-range controllable torpedo such as I have described is similar to that employed when using its uncontrollable Whitehead, only the torpedo-boat would, by reason of its controllable Whitehead having now more than double the range of the former, be in a vastly superior position. The 1,000 yds. would be traversed in 90 secs., and the moment the torpedo is started on its errand of destruction the torpedo-boat could be steaming away from the enemy, it being only necessary for the operator in her to keep the torpedo on her course, and this without seeing her.

If, armed with the 400-yd. uncontrollable Whitehead, it is considered feasible and permissible for a torpedo-boat, costing from 50 to 100 times more than this the only weapon she is armed with, to approach so close to the enemy's ship, in these days of machine and quick-firing guns, with a reasonable chance of delivering a successful attack and herself escaping without material damage—then the advantage accruing to a similar attack, which, however, can be delivered at more than 1,000 yds. from the enemy's ship, must be immense, and appears to me to demand an immediate and searching inquiry into the possibility of practically realizing my notions, by which alone this advantage is to be obtained.

*Long Range.*—In considering the application of this system of directive control to the long range controllable torpedoes which are intended for use in ships, special or ordinary, a difficulty at once presents itself, in that it is most probable that both the operating station (the vessel using it) and the object of attack (the enemy's ship) will be on the move at one and the same time; this brings in a fresh development of the indicator-board arrangement, and one only to be satisfactorily settled by actual practice. The essence of a successful application of the long-range ship controllable torpedo lies in the necessity that the ship and its torpedo should be capable of being operated absolutely independently of one another; by this I mean that the captain of the ship must be able to manœuvre his charge as though no such weapon existed or an attack with it in progress, while the torpedo operator must not care one jot what manœuvres the ship may be performing during the run of his "charge."

*Cable.*—I know it is a popular idea that the navy will have nothing to do with a torpedo which needs a cable connecting it and the ship from which it is directed, but so far no serious or practical effort has been made to design an arrangement for enabling a ship controllable torpedo to be used which shall disarm the present naval opposition to its adoption, an opposition based on the supposition of the fouling of the torpedo cable and the ship's propeller. I have often run the

Nordenfelt electric controllable torpedo from an ordinary steam launch, carrying a coil of cable in addition to the cable in the torpedo and moved about ahead and astern in all directions independent and oblivious of the torpedo's movements, without experiencing any trouble on this score. It must be remembered that there is no strain on the cable, either when paying out from the torpedo or the launch or other vessel operating it; as an instance, on one occasion the Nordenfelt ran her nose in the mud, and her engine could not be stopped for some time, and when I came to pick her up the whole of her cable, 3,000 and more yards, had been payed out merely by the pumping action of the water as it was drawn through the cable chamber and tube by the revolving of her propeller.

There is nothing impossible, nor any great difficulty to be overcome in attaining this object—a practical ship controllable torpedo; at least, this is my humble opinion, after conducting immense runs with cabled torpedoes. Where there's a will there's a way—and with a controllable Whitehead a fact, the will is achieved; and the way, the adapting it to ship use, will, in fact must, rapidly follow.

*Submarine War Vessels.*—A submarine vessel armed with the uncontrollable Whitehead or Schwartzkopff has to approach only partially submarine to within 500 yds. of the enemy before delivering her attack and becoming completely submerged; but if supplied with the short range controllable Whitehead or Schwartzkopff, this distance is more than doubled, and therefore its value as a fighting unit vastly improved.

*Fire Ships and Countermining Boats.*—A countermining boat provided with this system of directive control, a coil of cable, and means for moving its rudder from the operating point, would be far more capable of successfully fulfilling its object, the destruction of an enemy's mine field, than is at present possible, because it could then be directed on a given course, or set of courses, so as to ensure its passing round, through, and across the mine field, dropping its counter-mines on its way, and as by this system it needs not be seen to be guided, this operation could be conducted at night-time, or from a point out of sight of the mine field. The advantage of being able, by this method of directive control, to run a fire, or other such ship, on a set course or courses, are obvious, I think, and need not be enlarged upon.

*Life-saving Vessels.*—For the same reason this invention might be applied with great advantage, under certain circumstances, to life-saving vessels, for the purpose of conducting a line to a ship driven on the rocks by stress of weather.

*Ships.*—As by this means a ship may be kept on her course and manœuvred from a position anywhere beneath her upper deck, it might be found useful in guiding a torpedo-boat, when driving through a heavy sea and battened down, or when making a daylight attack, or again in the case of a "ram," which has to approach very close to the enemy in delivering her attack.

In conclusion, I am going to take you into my confidence by telling you that I have altogether failed to induce financialists to join me

in proving the justness of my contentions, not because the intrinsic value of this invention is considered worthless, but solely because it is connected with that commercial terror, torpedoes.

The reasons for this state of terror are not far to seek, but are difficult to overcome. In the first case, the commercial world have been bitten rather severely from time to time with bogus torpedo and other such-like inventions, represented as veritable gold mines to the speculative financialist, but which ultimately prove mere quicksands for the absorption of all the gold that may be squeezed out of the unfortunate company, syndicate, or single party running the invention. As an instance, I know of a so-called torpedo invention, in connection with which I was on three different occasions implored to throw in my lot as an expert, by the supposed inventor, notwithstanding that from the first I expressed my opinion of the scheme to him in the straightest possible language. Well, this invention, to my great surprise, was accorded a detailed and lengthy description in the "Times," and some of the leading scientific papers, and after over three thousand goodly sovereigns had been absorbed by this worthless and impossible scheme, I will not say expended on it, the inventor precipitately retired, and the bubble exploded, leaving no atoms in the shape of a torpedo behind.

I have, when bringing my invention to the notice of likely supporters, held up as a bait the huge financial successes of the Whitehead and Brennan torpedoes; but, alas! without effecting the loosening of their purse-strings. They admit these facts, they admit the possible value of my invention, but they advance insurmountable obstacles in the shape of the protracted delay common to all such matters controlled by Governments as purchasers, and also the very restricted field for the sale of every kind of war material, especially torpedoes.

MR. EVERETT W. FRAZER: I wish to express my appreciation of the valuable invention that has been placed before us by Lieutenant Sleeman. As a representative of the Sims-Edison Company I should like to explain why we have not adopted something of this kind up to now. Messrs. Edison and Sims have experimented with a number of attachments of this nature, which have not so far been certain in their action. Some fairly good results were obtained when the attachments were manipulated by the inventors themselves, but the torpedo officers and men found much difficulty and uncertainty when putting them into practical use. I may say that with regard to the Sims-Edison torpedo our aim has been simplicity. The Whitehead, up to within the past few years, has been rather uncertain in its operation, and it is generally estimated that five or six launchings are required to secure the certain destruction of the object aimed at. As I said, we have tried to make the Sims-Edison very simple and also very sure in its action. The result has been that we have cut down one attachment after another until nothing remains but the plain torpedo which goes ahead and steers from right to left. As Lieutenant Sleeman states, the float undoubtedly does lessen the speed of a torpedo, amounting in one case to perhaps as much as 7 or 8 knots, but we found the desire of the American officers was rather to sacrifice speed in order to obtain certainty of action. Within the last year or so the Whitehead torpedo has certainly achieved wonders, and there are now officers in all the navies of the world who can operate them with surprising accuracy. I think that Lieutenant Sleeman's invention can be adapted to our system as well as to others, but no doubt such adaptation will take time to introduce because it will be hard to make officers believe in it.

They feel that at critical moments they must have as few key-instruments and galvanometers as possible to watch. But the superior education and experience of the officers of to-day will gradually clear away many objections, and if Lieutenant Sleeman will persevere it may eventually be adopted. From my personal intercourse with Belgian, Dutch, Japanese, and Brazilian officers I know they, one and all, desire simplicity above all things. With regard to our range, as mentioned by Lieutenant Sleeman, it was the opinion of a French Commission that the torpedo could be followed for a distance of 2 miles. With the apparatus exhibited by Lieutenant Sleeman the range might be greatly extended, perhaps to 4 or 5 miles, or even indefinitely, but it is an open question in my mind whether in a shore-defence weapon, such as the Sims-Edison, a greater range than 2 or 3 miles were necessary especially if it be gained at the expense of simplicity. A shore-defence torpedo is not for offensive purposes. It is an adjunct or auxiliary to fixed mines, torpedo-boats, &c., and would render the greatest service in preventing the forcing of an entrance to a harbour or the landing of troops. I thank Lieutenant Sleeman for his courtesy in writing me to be present.

Captain C. V. ANSON: I should like to say a few words, and in doing so I would ask to be allowed to point to one of the diagrams. As far as the mechanical difficulties are concerned I think that Lieutenant Sleeman in his invention has grappled with them very cleverly indeed, but I personally cannot help thinking that the induced electricity in the wires will render the movements uncertain of such a very fragile thing as the compass needle. Granting that this does not occur, as to this question of directing the torpedo I cannot see how you are to tell how far the torpedo has gone when it goes off its course. Instead of being at the place supposed it may be deflected by the tide, although on the same course, somewhere else, and when the helm is put over it will not hit the ship. Unless you can see what you have to work with how can you tell the position of the torpedo? And the more times that your helm is altered the more difficulties you must contend with.

The CHAIRMAN: You get the movement to scale.

Captain ANSON: What I mean to say, sir, is (pointing to the diagram) this, there is the ship and there is the torpedo; you go straight for the ship, you get out of your course.

Lieutenant SLEEMAN: Why should we?

Captain ANSON: If you do not go out of your course you may just as well have a Whitehead at once. Of course the idea of a controllable torpedo is that it does go out of its course, and you have to put it right again. Suppose it goes out of its course and it goes in this direction (Diagram), I only ask Lieutenant Sleeman or anybody else how you will know *when* you are to put your helm over so as to make a hit? In my opinion it would be impossible to use this against a ship in motion. Against a stationary ship, of course, it is more likely to be successful, but against a ship moving I think it would be useless. It is all very well to say that the enemy is going on one course and at a certain speed, but no man would be in his senses if in command of a man-of-war, knowing that he may be attacked by Whitehead torpedoes and perhaps controllable torpedoes, who would keep one course and go one speed. I wish, in conclusion, to add my humble thanks to Lieutenant Sleeman for his clever contrivance and his very interesting lecture.

Captain M'EVoy: With regard to the very interesting paper we have heard to-day from Lieutenant Sleeman, I cannot say that I am prepared to make any remarks of special interest. I, however, do not see any real difficulty in the practical working of Lieutenant Sleeman's invention, providing an accurate estimate can be made of the distance of the torpedo at the various stages of its run. This, in combination with a careful manipulation of the step-by-step instrument, I think ought to give the operator every chance to direct it to the point aimed at with very great certainty. The invention is certainly a very ingenious one, and, in my opinion, likely to lead up to other uses of importance, in which the principle embodied could be successfully applied, in addition to those indicated by the lecturer.

Mr. WALTER GORDON WILSON: Might I ask a question? As regards the increased range of the torpedo, it seems to me to keep your torpedo at the surface of the water; you will not be able to see your torpedo at any greater distance than

the present torpedo with floats. After that you could only steer point by point, and I calculate that in a distance of 3,000 yds., supposing you deviated from your course by half a point, it would give an error of something like 275 yds., which I fear would make the increase of range of not much value.

MR. LOUIS BRENNAN, C.B.: Mr. Chairman and gentlemen,—I am very sorry that I cannot enter into a discussion on this very interesting subject, because, owing to my connection with the Government, it would lead me on to matters that I feel I should not speak about. My object in rising is simply to correct a statement made by the lecturer at the commencement, when he mentioned something about the "Army and Navy Gazette" having stated that I said no other method than steering by a mast could be adopted. I think that was the statement made. I never remember having the pleasure of meeting the editor or any of the staff of the "Army and Navy Gazette," but it is quite possible I have said I do not believe in any system of controlling a torpedo unless you could see the precise position of the weapon while it is running. And if I made that statement, which, no doubt, I have done, it was not because I had not thought out a system of this kind myself, but because I had thrashed it out and had abandoned it as impracticable. These are the only words I have to say. I can only join in what other speakers have said as to the ingenuity and cleverness of Lieutenant Sleeman in his work, and express again my sorrow that I cannot enter more minutely into a discussion of the details.

Lieutenant SLEEMAN: In reference to what Mr. Brennan said about the remark that he is alleged to have made in the "Army and Navy Gazette," and quoted by me, it does not specify any particular mode of running controllable torpedoes, but refers only to the present system. This remark has been published in my book, but whether Mr. Brennan ever said it or not I do not know. As regards Captain Anson's remark as to the relative position of the ship and torpedo, I am afraid I did not explain myself at all clearly. The indicator board represents a plan of the waters in which the particular torpedo attack is to take place, and is on a scale of 200 yds. to the inch; the torpedo track indicator is on the same scale, and the endless screw carrying the model torpedo is so arranged that it travels along this track indicator at the same relative rate as the actual torpedo travels under the water. Thus, if I place this track indicator on the indicator board at the point where the torpedo is lying at rest, and on that course which the torpedo is heading on, and I start them both together, I get on the indicator board the path of the torpedo in the water, provided she runs on that particular course, which I know by the galvanometer. The only thing I do not know is whether she is drifting bodily by the tide; that is one of the horrors of torpedo running. If I find the torpedo has gone off a point, I turn the track indicator accordingly. So that I really get on the indicator board the path which is made by the torpedo as near as you can get it by such an arrangement. If to-morrow I had the money given me to put this invention into a torpedo and showed the torpedo running absolutely out of my sight so as to strike a moving target at any distance within her range, without my seeing the torpedo at all but only the target, that is, I think, good enough, and I am perfectly sure I could do it. I have had a tremendous lot of trouble with torpedoes run like the Nordenfelt, the Sims-Edison, and the Patrick, and I think anything you can do to get rid of these floats is worth attempting. I think Mr. Brennan will admit that if anybody can run his torpedo as well as it is run now, but without the masts, that will be something gained. Then there was a question about tidal set. Of course if you were running a torpedo at Portsmouth, or Plymouth, or Brighton, or elsewhere, you would insure her being manœuvred by an operator familiar with the tides of the particular locality; while, when feasible, you would not rest your attack and defence on a *single* torpedo.

THE CHAIRMEN (Admiral Colomb): Gentlemen, I am sure you will heartily join with me in offering Lieutenant Sleeman our thanks for his paper on the very ingenious and carefully described instrument that we have had before us. But I dare say a good many of you feel with me that in an exceedingly complex piece of business such as this is, one cannot grasp the whole of it at once. One cannot quite see in every respect how far such an instrument as this might be applicable. I think the lecturer was just in that difficulty, leaving too much to explain before we

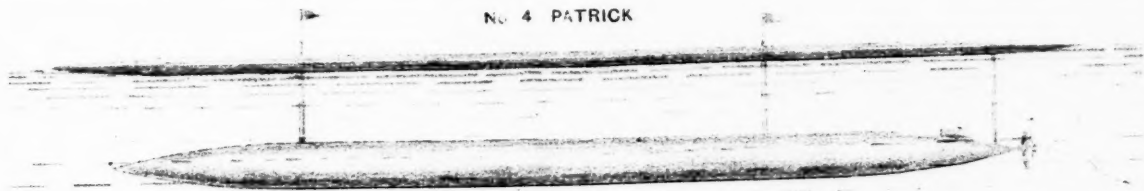
could pronounce an opinion upon the value of the proposal. I am afraid for myself I am a bad person to sum up a discussion on a subject of this kind, as I admit myself prejudiced against dirigible torpedoes of all sorts, sizes, and shapes. My feeling about it is, that if you want to torpedo a ship you had better go to work as the "Almirante Condell" and the "Almirante Lynch" did on the coast of Chili. I do not feel that you can carry these things to a very high scientific point, and I cannot help thinking you might have this instrument quite perfect, and doing all that the lecturer hopes it would do, and yet that it would be too theoretical in its action to come into practical use. I think that, generally speaking, we want something rough. I suppose Mr. Brennan's invention, up to the point that he goes to, is of practical value, although I am afraid I should have been hostile to that if I had had anything to say of its initiation. The immense amount of time and thought that Lieutenant Sleeman must have given to this we must all appreciate: and the difficulties he must have got over in manipulating his compass so as to get it to actually work, most of us will understand. With regard to the failure or not of the electrical arrangements I am not competent to speak at all. I think the real practical difficulty—we seem to be all running on it—was that question of observing the distances of torpedo and target; you might know the direction by this instrument very well, but the real question is to get the direction *combined with the distance*. Although Lieutenant Sleeman repudiated any particular originality in the instrument he proposes to employ for this purpose, I cannot but think that there is a great deal of originality in the idea, actually putting in motion a sort of model torpedo to scale, so that he would have his bearing and his distance before him under his eye at the same moment. To some extent, if it would work, it would meet our point. Whether it would work or not I think is quite another question. But whatever may be our views upon the utility of the instrument before us, we must all sympathise very strongly with Lieutenant Sleeman in his endeavour, and I think we may all offer him our thanks, and hope that, after all said and done, when times get a little easier he may get some financier to take the thing up and let us see what it really means, because I feel quite strongly none of us can see exactly what it means, or exactly what the inventor thinks it means, till it has actually been tried on a full scale.



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No 4 PATRICK.

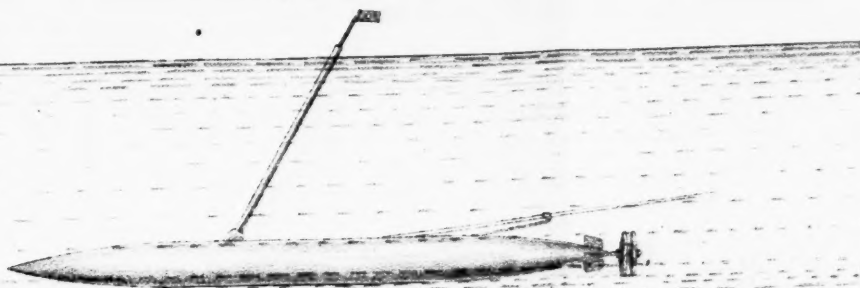


No 5 NORDENFELT.

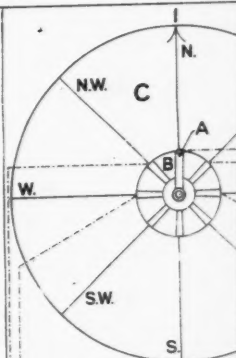
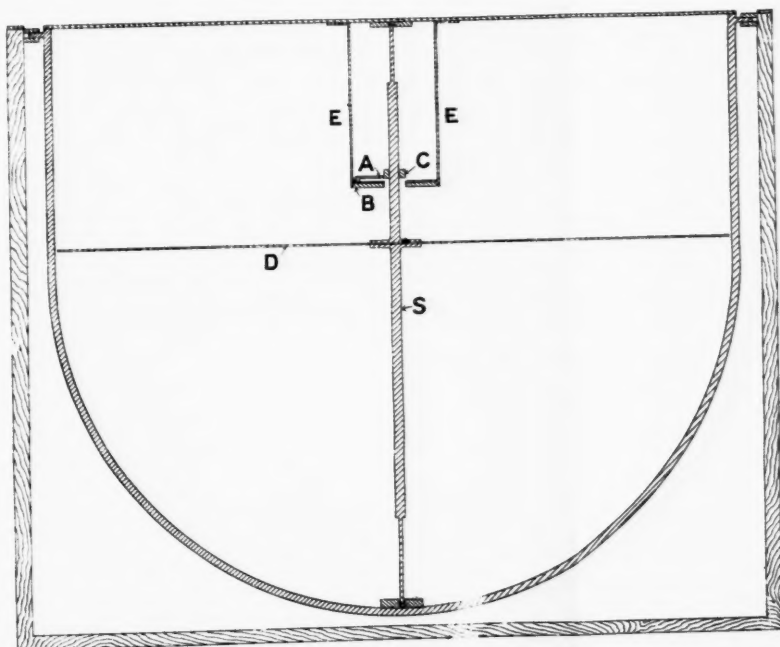




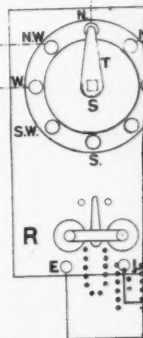
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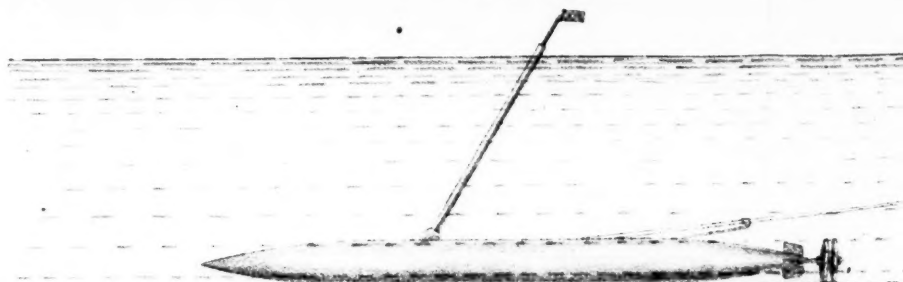
TORPEDO.



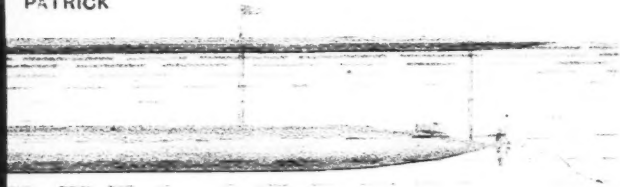
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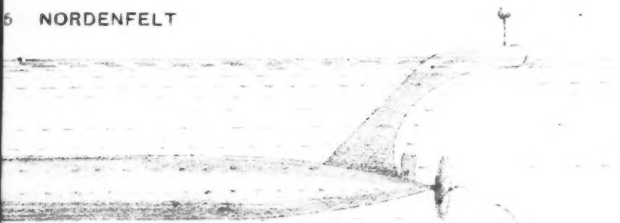
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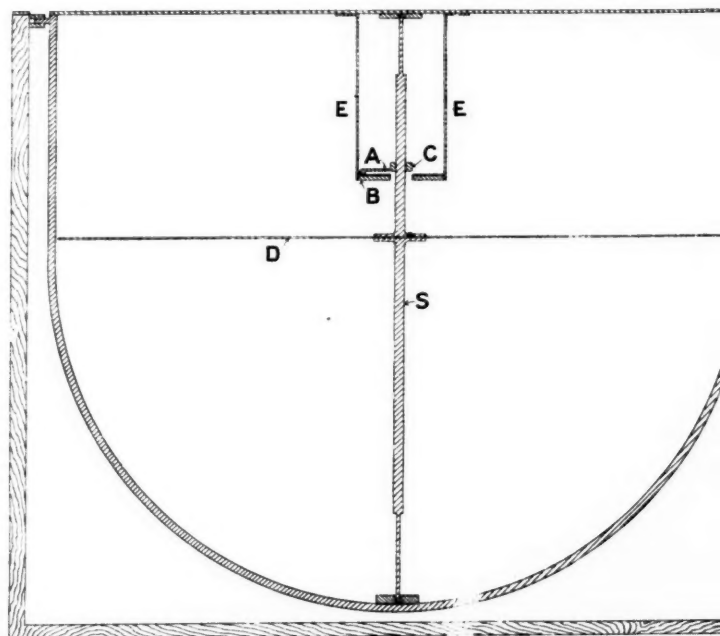
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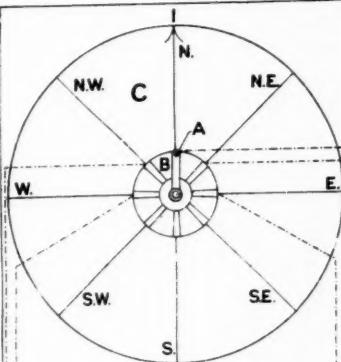
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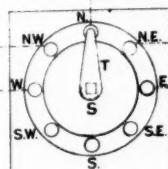
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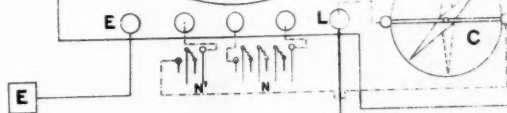
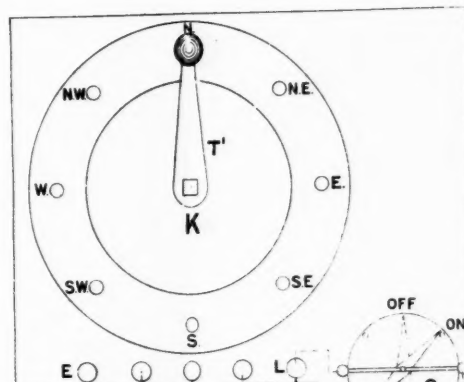
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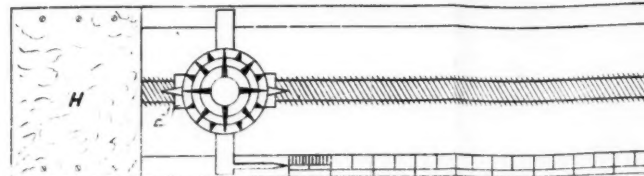
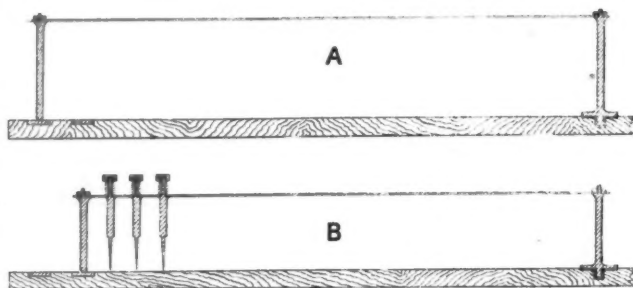
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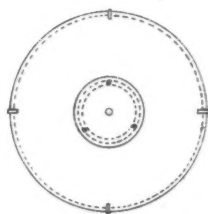
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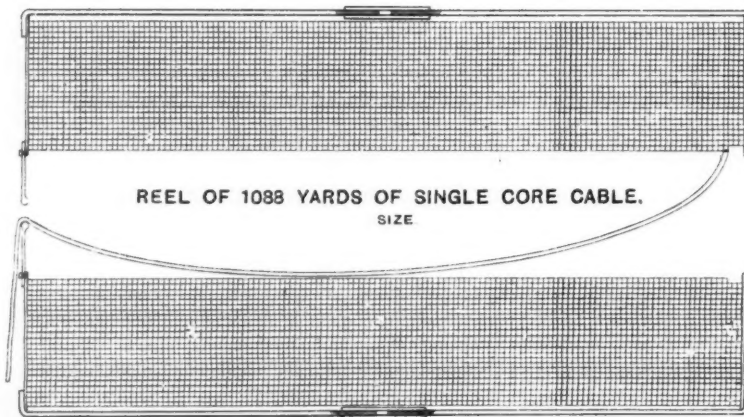
WHITEHEAD DISCHARGING TUBE



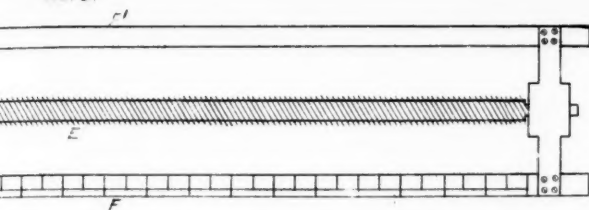
FRONT VIEW OF REEL



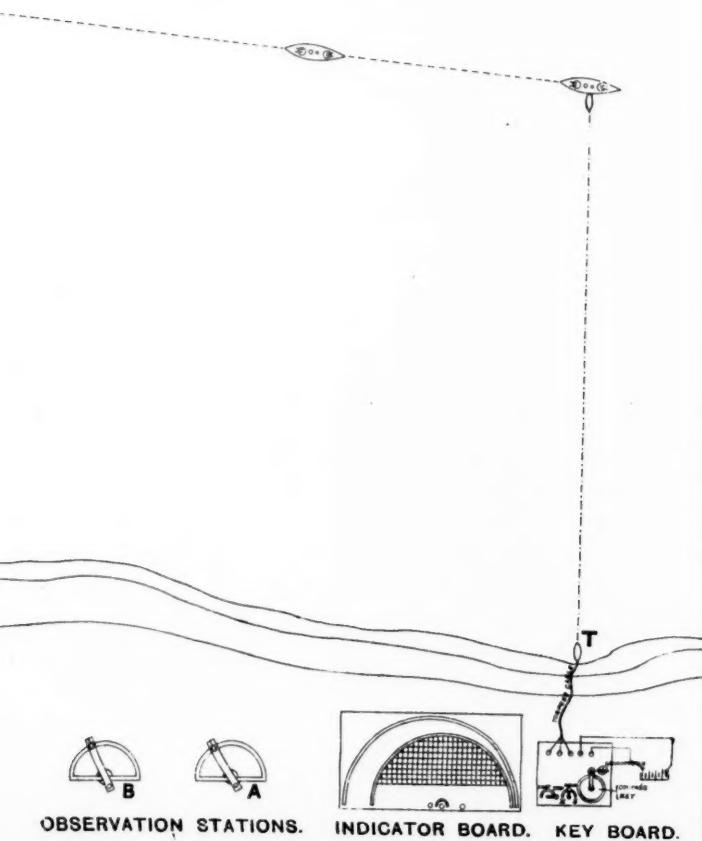
REEL OF 1088 YARDS OF SINGLE CORE CABLE.  
SIZE



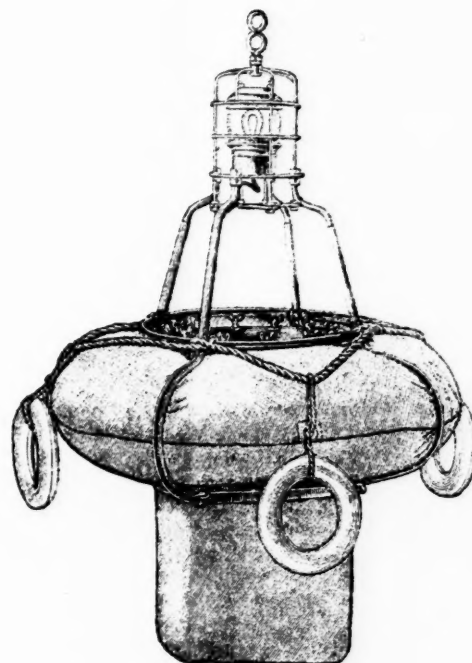
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No 10



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## OCCASIONAL PAPERS.

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### THE ADMIRALTY FLAG.

By Vice-Admiral BLOOMFIELD.

THE flag of the Lord High Admiral, when in executive command afloat, has always been the Royal Standard. Sir William Monson, whose naval experience in high command extended over the reigns of Elizabeth, James I, and Charles I, is quite clear on this point. He says in his "Naval Tracts," written between the years 1634 A.D. and 1640 A.D.:—"The cross of the arms of England is peculiar to the Lord High Admiral of England, who is, and no other, bound to bear it when he goes to sea; which flag, in truth, carries a princely show when it is displayed."

Nathaniel Boteler, who was Governor of the "still vexed Bermoothes" (first colonized by us in 1609 A.D.) from 1619 to 1622, and was afterwards captain of a man-of-war in the second I. of Rhé expedition in 1627, wrote a "Dialogicall Discourse Concerninge Maryne Affaires," about the year 1634 (evidently under the supervision of Sir W. Monson), for the instruction of the Duke of York, second son of Charles I, then an infant, but destined by the King from his birth to be the future Lord Admiral.

This is a very excellent and historically valuable work, of which there are several MS. copies in the British Museum, and only one—a much mutilated and curtailed version—printed, in 1685, and dedicated by the publisher to Mr. Samuel Pepys, then Secretary to the Admiralty.

The six "dialogues" are written in the form of a catechism between an embryo Lord Admiral and an experienced sea-captain. Boteler was of opinion that the carrying of the Royal Standard at sea by the Lord High Admiral applied to maritime nations generally, and, in his instruction to his pupil on this subject, he, no doubt, gives the right explanation of the origin of the practice, viz., that, as clearly shown in the Black Book of the Admiralty, temp. Edward III, the Sovereign, when circumstances permitted, was expected to take personal command of the fleet in a naval engagement, as did Edward III at the battle of Sluys on 23rd June, 1340; in the expedition to La Hogue on 12th July, 1346 (Creecy); and in the great battle of L'Espagnolo sur Mer on 29th August, 1350, when both the King and the Prince of Wales had their ships sunk under them. The Lord High Admiral was the

deputy of the Sovereign in his absence from command afloat. Boteler says:—"Whenever the Prynce is there in the fleet in person, or his High Admirall in his stead, there is then carried out in the maintopp of the Admirall shippe, where hee himselfe is in view of one of the ordinary flagges, the Standard Royall, which is the armes of the kingdome or State which they belong unto."

In confirmation of Monson's and Boteler's views we have an engraving (in "Archæologia") of the great seal of the first Lord Admiral, Sir Thos. Beaufort, Earl of Dorset, Duke of Exeter, and Lord Admiral from 1409 to 1426. Also:—

- (A.) A warrant from Queen Elizabeth, four years after she succeeded to the throne, directing the Master of the Wardrobe to issue flags bearing the royal arms to the Navy Board for use of the flag-ship of Lord High Admiral the Lord Clinton, anno 1563 A.D.
- (B.) Art. 16 of the "Queen's Instructions to the Fleet," drawn up by Sir John Hawkins shortly after assuming the office of Treasurer of the Navy in 1573 A.D., and approved by the Queen, as follows:—"Item. Y<sup>e</sup> Lord Admirall shall beare a flagge of y<sup>e</sup> armes of England upon the top of his mainmast, and a flagge of St. George on the foretopmast, and shall beare by night two lights one above the other in his sterne."
- (C.) In the "Sea Causes Extraordinary," 1588 A.D., is an item of payment made to "Lewis Lydgard, of London, Painter, the 28th January, 1587<sup>s</sup> A.D., for price of 102 yards of calicoe had for the makinge of two greate flagges, stained in colloures with Her Majestie's armes, to be worne at sea in the shippe the Lord Admirall sails in, at 9d. every yard, £3 16s. 6d."
- (D.) We have the evidence of Monson that the Royal Standard was flown from the maintop masthead of the "Arke Royall" by Lord High Admiral Charles Howard, in the engagement against the Spanish Armada, 1588 A.D.; and again in 1596 in the same ship during the joint expedition to Cadiz with the Earl of Essex.

Lastly, we have the journal of Lord High Admiral George Villiers, 1st Duke of Buckingham, who assures us that he carried the Standard in his flag-ship, the "Triumph," during the second expedition to the I. of Rhé in 1627 A.D., and he had, before this, obtained the assent of Charles I, during his absence as Ambassador Extraordinary to the States of the United Provinces in 1625, to his authorizing Sir Ed. Cecill, Kt. (created Viscount Wimbleton for the occasion) to fly the Royal Standard on board his flag-ship the "Anne Royall" during the expedition to Cadiz on 5th October, 1625; but this was altogether without precedent, as Lord Wimbleton was not even a naval officer, and it was accorded him only because Lord Wimbleton was considered as *locum tenens* of the Duke on this occasion, who *was* to have commanded himself in person.

In Boteler's catechism (1634) the Lord High Admiral says:—"But is the Standard Royall to be carried *onely* by the Prynce in person or



his High Admirall?" The sea-captain replies, "I *once* (and only once) sawe itt carried abroad by a meere Generall of the Fleete for a whole voiage together. But (as I take itt) it was granted him rather as a favour than a due." Boteler is here referring to Lord Wimbledon; but it seems that, in the following year, Robert Bertie, 11th Baron Willoughby d'Eresby, then Lord Great Chamberlain (created Earl of Lindsey in November of the same year and afterwards killed at the battle of Edge Hill, on 23rd October, 1642), also hoisted the Standard on board the "Triumph" when in command of the first expedition (consisting of a fleet of 30 ships) intended for the relief of Rochelle, which sailed from Portsmouth in September, 1626. He was only absent from Portsmouth one month and never succeeded in getting beyond the limits of the Channel before his return there at the end of October, having met with continual bad weather.

He does not tell us on whose authority he hoisted the Standard, but he cited it as a precedent on a subsequent occasion, when in command of a large fleet. He was second in command under the Duke of Buckingham in 1627, during the second Rochelle expedition, when he flew the St. George's flag at the fore. The Earl of Denbigh (the Duke's brother-in-law), who commanded the third expedition of 30 ships, which left Plymouth on 17th April, 1628, and returned on 26th May following, did not fly the Standard, nor did the Earl of Lindsey himself, in September, 1628, when he took command of the fourth great fleet for the relief of Rochelle, fitted out at Portsmouth in August for the command of the Duke himself, who was, however, stabbed to death in a house in the High Street by Lieutenant John Felton, on 23rd August, just as it was on the point of sailing.

We have the evidence of eye-witnesses, taken by Mr. T. Pepys in 1686, that Lord Lindsey carried the Union at the main on this occasion.

When, a few years later, he was appointed "Admirall and Generall of H. Ma<sup>tie</sup>'s Fleete now setting forth" on 30th March, 1635, Sir William Monson being his Vice-Admiral on board the "James," Lord Lindsey claimed the precedent of 1626 as entitling him to hoist the Royal Standard on board his flagship the "Merhonor."

In writing to the Navy Board on 1st May, 1635, for a supply of flags for the other Admirals (eight in number) of his fleet, then in the Downs, he says:—"I am alsoe unfurnished of a Standard for the shippe w<sup>h</sup> maketh me not a little wonder, considering my comission gives me as much power as can belong to a Lord Admirall of England, or rather more by being a *Generall*, which is alwaies a representative Person of his Prince. Men of inferior quality to myselfe" (here the Earl refers to Lord Wimbledon) "have not gone without it in other employments of lesse moment, and, *having had it formerly myselfe*, I cannot but be earnest for it. I pray demurre no longer upon the matter, but send it me to the fleet with the rest of the appurtenances for w<sup>h</sup> I have written." This request was repeated in a second letter dated "Aboard his Ma<sup>tie</sup>'s Royall shippe the 'Merhon', riding in the Downes, the 1st day of June at flower in the afternoone, haste, hast, post-haste with speede."

Lindsey had evidently endeavoured to get the Navy Board to supply him with a Standard surreptitiously in April, as Kenrick Edisbury, Surveyor of the Navy, writes to Mr. Edward Nicolas, Secretary to the Board of Admiralty, on 22nd April, as follows:—"I pray you move the Lords whether the officers of the Navye (Navy Board) shall make two flagges for Standards for the Admiral's ship w<sup>h</sup> some say are not fitt to be borne in any shippe but when the Lord Admiral himself goes. I praye you resolve this speedily because the Standards will require time to make." Lindsey had already asked for a secretary and a vessel of 50 tons as a kitchen, which had both been refused. In Mr. Nicolas's "Notes of business to be transacted with the Lords Comm<sup>rs</sup> of the Adm<sup>y</sup>," is the following, under date of May 30, 1635:—

"Lord Lindsey desires an order to the officers of the Navye to send him a Standard."

The Earl's "very loving friends, the officers of His Ma<sup>ties</sup> Navy at Deptford or elsewhere," as he styles the Navy Board, in the address of the letter, referred the matter to the Board of Admiralty, of which the Earl was himself then First Lord, and, in his absence, the Board referred it to the King. I find in the margin of the letter the following notation by Nicolas, who was not only secretary to the Board of Admiralty, as he had been to its predecessor, the Duke of Buckingham, but also Clerk of the Privy Council:—"Earl Lindsey to officers of Navye for a Standard, w<sup>h</sup> the King would not (as Mr. Secretary Coke saith) have to be sent, the same belonging only to His Ma<sup>tie</sup> and his children, or y<sup>e</sup> Lord Admirall of England, to carry."

Nicolas intimated this view to Lindsey, but it did not satisfy him, and, on 28th June, having as yet received no official response from the Admiralty to his urgent request, he writes to Mr. Nicolas as follows:—"I have written many letters to the Lords (of the Admiralty) and to Secretary Coke, but have received answer only to that of the 15th instant, by Secretary Windebanke. In one of my packets I desired I might change my shippe for the 'Tryumphe.' In another I desired a Standard, and alledged reasons for it. The Earls of Arundel and Rutland, and Sir Robert Mansell had it, and myselfe had the honour *formerly*. My commission makes me equal to Lord Admiral of England. Some privilege I might expecte as being Lord Great Chamberlaine; neither am I yet discharged of being Lord High Constable, both which offices precede the Admiral. Soe much time of my employment is run on that I will not presse it any further; if you will knowe the Lords' mind, I will be beholden to you for it."

(A.) *Thomas Howard, Earl of Arundell* (restored by James I), born in 1592, was Earl Marshall in 1621, and Earl of Norfolk 1644. He died October, 1646. (B.) *Francis Manners, 6th Earl of Rutland, K.G.* (succeeded in 1618), was father of Katherine, who married George Villiers, 1st Earl of Buckingham. He died in 1632, and was succeeded by his brother George, 7th Earl, who died in 1641. If the Earl of Lindsey is referring to them in his letter, I cannot find the occasion on which the *former* wore the Standard; but

the Earl of Rutland, in 1623, had not only his son-in-law, the Lord High Admiral, on board his ship, the "Prince Royal," but also the Prince of Wales, on their return from Spain, so it was scarcely ingenuous of Lindsey to cite this as a precedent, and, as regards Sir Robert Mansell, the only occasions on which he could have done so would have been either during his command of the fleet sent to suppress piracy at Algiers, between 12th October, 1620, and 1st October, 1621, when he was Vice-Admiral of England (but there is no mention of his having done so in the historical relation of that expedition); or, as Treasurer of the Navy, in 1605, when, as Vice-Admiral of the Fleet, under Sir Robert Levison, he conveyed, in the "Bear," the Lord High Admiral Charles Howard, as Ambassador to Spain, to obtain the King's signature to the Treaty of Peace, and this would, of course, have been no better precedent than that of the Earl of Rutland.

Sunday, 5th October, 1623, was a day of great rejoicing at Portsmouth. Phineas Pett tells us in his journal, that on August 19, 1623, King James I went on board the "Prince Royal," in Stokes Bay, the other ships of the Royal squadron being the "St. Andrewe," the "Swiftsure," the "Defiance," the "Rainbow," the "Charles," and the "Seven Stars," with the pinnaces "St. George" and "Antelope," and three transports. The next day, August 20, the Prince and Duke embarked at Stokes Bay, returning on Sunday, 5th October, on which day, "at 11 A.M.," says Pett, they landed "amid great rejoicings," at the old Governor's house (now the Platform battery), at Portsmouth, an event commemorated by a brass bust of the Prince, which still stands in a niche at this spot, and a stone beneath once bore the following inscription:—"King Charles the First, after his travels through all France and Spain, and having passed very many dangers, both by sea and land, arrived here the 5th October, 1623. There was the greatest applause of joy for his safety throughout the kingdom that ever was known or heard of." The bust and inscription are believed to be due to Lord Wimbledon, Governor of Portsmouth in the reign of Charles I.

The Board of Admiralty, of which Lord Lindsey was First Lord, consisted, besides himself, of Edmund Sackville, Earl of Dorset, Frances Lord Cottington, Sir Harry Vane, Sir John Coke, and Sir Frances Windebanke. The last two were also Principal Secretaries of State. Lindsey was obliged to content himself with the union at the main, and avenged himself on British ships which did not pay him due homage.

On August 27, 1635, Edward Vincent Conway, who was on board the "Merhoneur" with Lindsey, in the Downs, writes to Sir J. Coke to say that "on Sunday last, the 23rd instant, two English merchant vessels, 'Straits ships' (i.e., vessels engaged in the Mediterranean trade), the 'Neptune,' commanded by William Bushell, of Limehouse, and the other by Thomas Scot of Radcliffe, set sail for London, and, in the presence of the fleet, presumed to put out their flags. The Admiral sent his barge for the masters; they did their best to escape, but were put in custody. The next day the Vice-Admiral of

the Fleet (Sir Wm. Monson) and the Rear-Admiral (Sir Jno. Pennington) were sent for, and it was agreed that they should be censured by a General Council of War. I (Conway) thought that the more public their punishment the more it would be for the King's honour this place (the Downs) being full of strangers' ships w<sup>h</sup> would carry the news of it to every part. They were fined; Bushell in £500, w<sup>h</sup> he deserves to pay, and Scot in £100, which the poverty of the man deserves it should be remitted; he was lately taken by the Turks, and his ransom not yet all paid." Lord Lindsey writes to Secretary Windebanke to the same effect.

The present Admiralty flag had not yet been invented, and, although there was in the Earl of Lindsey's fleet an Admiral, a Vice-Admiral, and a Rear-Admiral of the White, and an Admiral, Vice-Admiral, and Rear-Admiral of the Blue, each with their flags respectively at the main, fore, and mizen of the flag-ships, and also a Vice-Admiral and Rear-Admiral of the Red (which was the superior colour), with their flags at the fore and mizen respectively of their ships, it was not the custom for the ship of the Chief Admiral commanding the whole fleet, as well as the Red Squadron in particular, to hoist a red flag at the main (except during his temporary absence, when the Standard or Union was hauled down, and a red flag hoisted in its place), the Union being considered the flag next in point of precedence to the Royal Standard. It was not until the 9th November, 1805, that the red flag at the main was introduced, or, as the Order in Council not very correctly calls it, *restored* to the Royal Navy as the proper flag to be carried by the Admiral next in rank to that of Admiral and Commander-in-Chief of His Majesty's fleets, who always did, and still does, wear the Union at the main.

Lord Lindsey's command expired at the end of October, 1635. On 23rd March, 1636, Algernon Percy, Earl of Northumberland, received a Commission, in all respects similar to that of Earl Lindsey, and, with his flag on board the "Triumph," commanded a fleet of 60 ships, similarly divided into nine red, white, and blue squadrons, for the purpose of asserting, in as powerful a manner as possible, England's sovereignty in the Narrow Seas, a fleet considered to be the grandest and most important since the time of Elizabeth. The Earl's Commission was renewed on the 30th March, 1637, when he sailed to the fishing grounds in the north, occupied by Dutch busses, and proceeded to levy a tax upon them, with a view to their acknowledging England's sovereignty, which they did, and paid the Earl a sum of no less than £3,000. It was the levying shipmoney to fit out the three fleets of 1635, 1636, and 1637, which first brought King Charles into collision with the nation at large, and led to further action, which eventually lost him his crown and his head.

Mr. Samuel Pepys, who became "Secretary for the Affaires of the Admiralty" in 1684 A.D., bethought him, in 1687, of endeavouring to ascertain from all those still living who could give evidence on the subject, what they remembered as to the flags carried by Lord Wimbledon, in 1625, during the Cadiz Expedition; by the Duke of Buckingham, in the I. of Rhé Expedition, in 1627; by the Earl of

Lindsey, in 1628 and 1635; and by the Earl of Northumberland, in 1636 and 1637; and again when the latter was Lord High Admiral, from 1638 to 1643. This was with the object of drawing up a regulation for the King (James II), then Lord Admiral himself, as to how all flags, pendants, and ensigns should be worn in future, and in the Pepysian MSS. we find this clearly and admirably done. A very old captain (Young by name), after giving evidence regarding the Duke of Buckingham's flag, says, "I was also in that Fleet to the Northward, and I do remember the L.H.A., the Earl of Northumberland, wore the Standard, as above, and the squadron flags were so divided." "Mr. Love," says Mr. Pepys, "a pilot who had been a seaman in the 'Unicorn,' commanded by Sir Henry Mainwaring, under the Earl of Northumberland, Lord H. Adl., when he went to the North among the busses for the Dutch to pay their duties for taking herrings in our seas, remembers the L.H.A. wore the Standard in the maintop."

It would appear from this evidence that the Earl of Northumberland did wear the Standard between April and September, 1637, when levying fishing duties, and it is remarkable that both Captain Young and Mr. Love, as well as our historians of that voyage, all speak of the Earl as Lord High Admiral when, as a matter of fact he was, like the Earl of Lindsey, "Admiral, Custos Maris, and Captain-General." The fact of his carrying the Standard might have led to the supposition that he was Lord High Admiral, but the remarkable thing is that King Charles should have awarded this favour to the Earl of Northumberland after refusing it to Earl Lindsey on the ground of his not being Lord High Admiral or of the Royal Family. This has led me, bearing in mind the fact that this Earl was the inventor of the clear anchor seal, and that the next person we hear of using the Anchor Flag was his naval godson and worshipper James, Duke of York (after the Restoration), to think it possible that this flag may have been invented by the Earl, with the Royal approval, as something between the Standard and the Union in degree, and afterwards adopted permanently as his *personal* flag when he became Lord High Admiral the next year (1638). But this is pure conjecture, and I can find no evidence whatever in support of it; moreover, this view necessarily involves the belief that Captain Young and Mr. Love had confused in their minds the Royal Standard with the Anchor Flag during the lapse of half a century.

I have not found any evidence as to the flag worn by the Earl of Northumberland between 13th April, 1638, and December, 1643, as Lord High Admiral, during which time he does not seem to have commanded any fleet, but devoted himself entirely to the organization of the Service; but, in accordance with all previous precedent, he would have worn the Standard had he been in executive command afloat. Nor have I been able to ascertain with any degree of certainty what flag was flown by Robert Rich, Earl of Warwick, Lord High Admiral from December, 1643, to May, 1645, when he resigned, on account of the self-denying ordinance; nor positively what flag he flew as Lord High Admiral between May, 1648, and February,

1649; but there is good ground for believing that, when he was constantly in command afloat during the last period of his Lord High Admiralship, he carried the Standard. There is, even, a sketch in the Print Room of the British Museum, in which he is represented as doing so; but, although this sketch is *supposed* to be contemporaneous, there are good reasons, from certain anachronisms in the other flags shown, for supposing that, like so many of our naval historical pictures, it was executed sometime subsequent to the event to which it relates, and is, therefore, valueless as a historical record.

At first sight it would appear as though the Earl of Warwick, being appointed Lord High Admiral in December, 1643, by the Parliament in direct opposition to the wishes of the King, who had just revoked the patent of the Earl of Northumberland as Lord High Admiral, because he had appointed the Earl of Warwick as Admiral in command of the Narrow Seas, in deference to the Parliament's wishes and contrary to his own, could scarcely have worn the Standard in his ship; more especially as, when the Royal Standard was set up at Nottingham by Charles I, on that ominously squally evening of August 25, 1642, it was accepted by both Houses of Parliament as the "glove" thrown down in the lamentable dispute between the King and his people, and, henceforth, became an offence in the eyes of the Puritan party.

But we must remember that, when Lord Keeper Littleton carried off the Great Seal of England to the King at York on 22nd May, 1642, the Houses of Parliament had a new Great Seal made "in facsimile" with the King's image and arms upon it, and that the first use, Lord Clarendon tells us, made of this seal was for the Earl of Warwick's patent as Lord High Admiral; a Proclamation being at the same time issued to the effect that all persons accepting office under patents sealed by the Great Seal in possession of the King should be held as "Enemies to the State."

This seal continued to be used until the King's execution on 30th January, 1649; the Earl of Warwick might, therefore, consider himself equally entitled to fly the Royal Standard, although without the King's authority; his second patent, dated May, 1648, was revoked by Parliament a few days only after the execution of Charles I.

In confirmation of this view there was an event, during the last period of the Earl of Warwick's Lord High Admiralship, which well illustrates the unprecedented position in which he was placed at that time.

On 27th May, 1648, news reached the House of Commons that a portion of the fleet had revolted from the Parliament's authority to that of the King, and that the crews had put Colonel Rainborough, who had been appointed by the Admiralty Committee on 4th April as "Vice-Admirall and Commander-in-Chiefe of the Ffleete for this Somer's Expedition and Captain of the Parliament's ship y<sup>e</sup> 'Constant Reformaçon,'" on shore, together with such captains and officers as adhered to the Parliament; and that the revolted ships had sailed for Holland. There the Prince of Wales (afterwards Charles II), then only 18 years of age, with the hope of rescuing his father, then

in charge of Colonel Hammond at Carisbrooke Castle, took personal command, having Lord Willoughby of Parham as his Vice-Admiral and Sir W. Batten as Rear-Admiral. After capturing some valuable prizes and attacking Yarmouth, the Prince brought his Royal Squadron to the Downs.

The following copy of an original letter in the British Museum from the Earl of Warwick to the Governor of Weymouth will illustrate the position at the beginning of June, 1648:—

"SIR,

"I doubt not but you have received intelligence of the revolting of some ships of the fleet at the Downes from the Parliamentary obedience, which defection they still continue notwithstandinge all the endeavours used for their reduction. Their names are the 'Constant Reformaçon,' whereof Colonel Rainborough had lately the command; the 'Swallowe,' Leonard Harris, capitaine; the 'Satisfacçon,' Ffrancis Penrose, capitaine (whoe in faithfulness to the Parlyament hath left his shipp); the 'Hinde' frigott, Chas. Saltonstall, capitaine; the 'Roebucke,' Robert Mixon, comāder; and the 'Pellican' frigott, whose capitaine hath deserted her; If, therefore, any of these shippes shall come into y<sup>e</sup> place under yo<sup>r</sup> comānd, or any other shippes of the fleet, y<sup>e</sup> shalbe under suspition of confederating with those at the Downes, I desire yo<sup>r</sup> spetiall care to secure them in your Port, soe as they may not stir thence till further order; and of what you shall from time to time doe in the premises to give me speedy notice; wherein not doubting of your effectuall compliance, the matter soe much concerninge the publicke service, I rest

"Yo<sup>r</sup> affect<sup>e</sup> friend,

"WARWICKE."

Addressed—

"For y<sup>e</sup> Parliament's speciall affaires, for my worthy freind the Gov<sup>r</sup> of Weymouth and Melcombe Regis, or, in his absence, to his Deputie—

"hast

"hast post hast

"London, 3 June, 1648.

"hast,

"WARWICKE."

N.B.—(Sealed with two seals of the Clear Anchor surrounded by laurel leaves, as in 1643 A.D.)

When the House of Commons received the letter from Colonel Rainsborough notifying the revolt of the fleet it decided, on 27th May, only a week before the date of the above letter of the Earl of Warwick, and on the recommendation of the Admiralty Committee, to nominate the Earl to his old post of Lord High Admiral, resigned by him in May, 1645, on the passing of the "self-denying ordinance," which prohibited members of either House of Parliament from occupying a post of profit or emolument, civil or military, under Government. In the interim Warwick had been a commissioner of the Admiralty.

The Long Parliament may have thought that, as the Royal Standard of the Lord High Admiral would represent both King and Parliament in the eyes of Foreign Powers, they would, by reviving the office in the person of the Earl of Warwick, who was very popular with the seamen, fulfil the double purpose of winning back the revolted ships and making the Prince of Wales appear to the world in the light of a usurper in carrying the same flag (cadenced with his label of three points) in command of a mutinous



fleet. As soon as the Parliament was rid of the King it rid itself of the Lord Admiral.

The Earl of Warwick was directed to take immediate command of a fleet to oppose the Royal one as soon as he could get together sufficient ships. His letter to the Governor of Weymouth was written on the eve of his starting on this mission. Lord Clarendon's account of the meeting of the two fleets in the middle of July, by which time the Prince of Wales had 20 ships under his command, is as follows: "Whilst the Prince lay in the Downs another fleet was prepared by the Parliament, of more and better ships than had revolted, and the command thereof given to the Earl of Warwick, who very frankly accepted it, and was already on board, and with the tyde was come within sight of the Prince, and there dropped anchor; so that both fleets lay within that distance of each other that there was, now, nothing thought of but a battle, to which there seemed all alacrity in the Prince's fleet; the Earl of Warwick appeared resolute, and prepared enough for an engagement."

The Prince of Wales then summoned the Earl of Warwick to his allegiance, by letter, and the latter answered it with a "tu quoque"—"humbly beseeching his Highness to put himself in the hands of the Parliament, and that the Fleet with him might submit to their obedience, upon which they should be pardoned for their revolt." "There now," continues Lord Clarendon, "wanted only a wind to bring them together which, coming fair for the Prince, he resolved to attack them. All anchors were weighed and preparations made to advance to the assault, the whole Fleet being under sail towards the other." A calm, and then a head wind, however, here intervened, and the action was not fought, the revolted ships, with the Prince, returning to Goree, in Holland.

Unless Warwick at this time carried the Union Flag instead of the Standard, which is highly improbable, and would have been altogether unprecedented and beneath the dignity of his high position, there were, then, two Standards bearing the Arms of Great Britain, like the two Great Seals of the King and the Parliament, in direct and hostile opposition to one another afloat. The lawful heir to the throne, who styles himself, in a Commission dated June 8th, 1648, given to one of the captains of his fleet, "Charles, Prince of Great Britain, Duke of Cornwall and Albany, Highest Captain-Generall, under His Majesty, of all forces both by sea and land within the Kingdom of England, Dominion of Wales, and town of Berwick, &c.," flying his own Royal Standard by prescriptive right, is summoned to surrender himself a prisoner to an inferior subject flying the Standard of his father, who, although the Parliament's prisoner in Carisbrooke Castle, was recognized by the nation as 'none the less lawful King of Great Britain. Warwick's anomalous position was to be accentuated in September of the same year, when he proceeded in his flag-ship, the "St. George," to Helvelsueys with the object of forcing the revolted ships in that port to return to their allegiance.

Lord Clarendon says: "The Earl of Warwick then appeared upon the coast of Holland with another fleet from the Parliament, and



anchored within view of the King's Fleet, and it is probable he would have made some hostile attempt upon it, well knowing that many officers and seamen were on shore, if the States (Dutch) had not, in the very instant, sent some of their ships of war to preserve the peace in their Port. However, according to the insolence of his masters, and of most of those employed by them, *the Earl sent a summons of a strange nature to the King's ships*, in which he took notice that a fleet of ships which were part of the Navy Royal of the Kingdom of England was then riding at anchor off Helveltslueys and bearing a Standard. That he did, therefore, by *the Parliament's authority* by which he was constituted L.H.A. of England, require the Admiral or Commander in Chief of that Fleet to take down the Standard; and the Captains and mariners belonging to the ships, to render themselves and the ships to him as High Admiral of England, *and for the use of the King and Parliament*; and he did, by the like authority, offer an indemnity to all those who should submit to him." Lord Willoughby of Parham, the Prince of Wales's Vice-Admiral, to whom this summons was sent in the Prince's temporary absence, treated it with contempt and indignation, and the Earl of Warwick, after remaining two months at Goree to watch the revolted fleet, returned to the Downs at the end of November, 1648; but his action shows that he considered himself to be theoretically, if not practically, the King's Lord High Admiral as well as that of the Parliament.

The Prince of Wales, then, handed his fleet over to the command of Prince Rupert, who engaged it until 1652, under the Royal Standard, in a series of buccaneering expeditions with a view of obtaining money to feed and pay his officers and men: but, having lost many of his ships, and being unsuccessful, the remainder were, in that year, brought to Nantes and sold for what they would fetch.

And now came the end of the unfortunate Charles I. On 30th January, 1649, he passed from St. James' Park through the Banqueting House, thus sadly associated with the new house of our Royal Institution, to the scaffold adjoining it where "I go," said the King, "from a corruptible to an incorruptible crown, where no disturbance can be." "You are exchanged," said Bishop Juxon, "from a temporal to an eternal crown; a good exchange." "And then," says Whitelock, "the King took off his cloak and his George, which he gave to Dr. Juxon, saying, 'Remember!' after which, stooping down, he laid his neck upon the block, and, after very little pause, stretching forth his hands (the signal previously agreed upon) the executioner, at one blow, severed his head from his body. Then his body was put in a coffin, covered with black velvet, and removed to his lodging chamber at Whitehall. At this scene were many sighs and weeping eyes, and divers strove to dip their handkerchiefs in his blood." "After this act of butchery, the House sat early," and the cold-hearted Bradshaw and his fellow-regicides calmly proceeded to pass an Act of Parliament to "prohibit any to proclaim the Prince of Wales, or any other, to be King or Chief Magistrate of England or Ireland without consent of Parliament on pain of High treason."

On 8th February, 1649, the Parliamentary facsimile of the Great

Seal, which Lord Keeper Littleton carried back to York, and had been lost at the battle of Worcester, was brought "solemnly into the House of Commons by Commissioners Widdrington and Whitelock, all the Members being silent, and laid upon the table. Then the House passed an Act for the old Seal to be broken, and a workman was brought into the House with his tools, who, in the face of the House, upon the floor, broke the old Seal in pieces, and the House gave to Widdrington and Whitelock the pieces and purse of the old Seal; after this the House passed another Act for establishing the New Great Seal to be the Great Seal of England." "And now," says Lord Clarendon, "their (the Council of State's) New Great Seal was, by this time, ready, whereon was graven on one side the Armes of England and Ireland (St. George's Cross and the Harp on separate escutcheons) with this inscription: *The Great Seal of England*; and on the other side, circumscribed, *In the first year of Freedom, by God's blessing restored, 1648.*"

Henceforth, for the next few years, no single person could be trusted in the State; everything was to be managed by *Commissions* and *Committees*; and, as the Parliament's Royal Great Seal had been entrusted to six Commissioners, so the Commonwealth's Great Seal was now confided to the care of three lawyers instead of to one Lord Keeper; the Command of the fleet was, similarly, given to three colonels or land-admirals, styled Commissioners, who could act as spies on one another, under supervision of a Committee of the Council of State.

Fortunately, one of these colonels was of such nobility of character, so fearless in danger, and had such a natural aptitude for his new profession that, in spite of his years and other disadvantageous conditions, he did more to add to its glory in eight years than some of its most distinguished seamen had done in a lifetime.

The Council of State empowered "any two or more" of these colonel-admirals to use the executive authority, afloat, of a Lord High Admiral; and the "Seal of the Anchor" in giving Commissions to inferior admirals and such other officers as they chose to appoint; and, also, gave them each, in lieu of the Royal Standard of the Lord High Admiral, a new one bearing, on a red flag, the new national arms, "the St. George's Cross and Irish Harp, on separate escutcheons upon a shield of gold." The Union Flag was abolished, and the old St. George's Cross restored as the National Flag before the union with Scotland; the State's arms at the same time replaced the Royal ones on the sterns of all ships of war.

The new Standard was carried from 23rd February, 1649, to 1st March, 1651, by Commissioners Edward Popham, Robert Blake (Colonel) and Richard Dean (Colonel), whose rank, *inter se*, was fixed by the Council of State; Popham, as the Chief, being distinguished by laurel-leaves surrounding the shield of arms on his Standard. Blake carried this Standard alone from March 25th, 1652, to the end of that year.

On 14th January, 1653, Blake, Deane, and Monk (afterwards Earl of Albemarle), who are now styled Generals instead of colonels in their

Commissions, were ordered to hoist the Commonwealth Standard at the main in each of their ships, distinguished from one another by the senior (Blake) having a red pendant under his Standard; the second (Deane) by a blue pendant; and junior (Monk) by a white pendant; each General having under him a distinct division of the Fleet with a Vice- and Rear-Admiral to each, carrying at the fore and mizen, respectively, flags of the same colour as the pendant under their General's Standard; there were thus, in all, nine Standards and flags. When one of the Generals left his ship, temporarily, the Standard was hauled down and a *flag* (not a pendant) of the colour of the General's *pendant* was hoisted in its place.

Each ship, not bearing a flag, now, for the first time in naval history, carried at the main a pendant of the same colour as her Admiral's flag, and, at the mizen yard-arm or ensign staff, a large rectangular flag, of the same colour, having in its upper cantonment the staff, the St. George's Cross, or Flag. These stern flags came to be known as the red, white, and blue ensigns; and the old practice of hoisting pendants at the yard arms, to distinguish the various squadrons, thenceforth ceased.

A great and victorious battle was fought by the above fleet with the Dutch, on the 15th, 16th, and 17th February, 1653, between Portland and the Isle of Wight, and another on 2nd and 3rd June (when Deane was killed); and on 31st July (the greatest victory of all) the last battle in that war, when Monk alone of the three Generals was present (Blake having gone home sick), in honour of which three battles Parliament voted Monk and Blake gold chains, which were placed round their necks by Oliver Cromwell, and a Treaty of Peace was concluded on 4th April, 1654, in which, for the first time in history, the English Sovereignty of the Narrow Seas was formally admitted by the Dutch, who agreed to lower their topsails to all British ships of war met within these limits.

In the mean time, on the 16th December, 1653, Oliver Cromwell had proclaimed himself, through his Council, "Lord Protector of the Commonwealth of England, Scotland, and Ireland," and was acknowledged as such by Monk and Blake. He, consequently, ordered a New Great Seal to be made, quartered like the former Royal Arms, but bearing in the first and fourth quarters the Cross of St. George, or old English Flag; in the second quarter the Cross of St. Andrew, or the old Scotch flag; and in the fourth quarter the Harp of Ireland; the whole surmounted by the legend "*Olivarius Deigra: Reipub: Angliæ Scotiæ et Hiberniæ Protector.*" The Standard should have been modified, therefore, to include the addition of Scotland to the escutcheon which had hitherto borne only the emblems of England and Ireland. But, according to the recollection of Mr. Homewood, interrogated on this point by Mr. Pepys, in 1687, this was not the case. He says "the Generals at sea before the Restoration wore a Standard of the Harp and Cross in a laurel wreath at the maintopmast head; the Vice-Admiral, the plain Harp and Cross at the foretopmast head; and the Rear-Admiral the same at the mizentopmast head." The coins of 1656, also, bore only the

Harp and Cross. The *old* Standard of the Council of State must have been carried, therefore, by Robert Blake, George Monk, John Disbrow, and Wm. Penn, Admirals and Generals of the Fleet, on board the "Swiftsure," from 16th December, 1553, to the end of the next year; and by Blake, on board the "St. George," when in command in the Mediterranean, and on the Spanish coast, from November, 1654, to the end of 1655; and, again, from that time until his death as his ship was entering Plymouth Sound, on 17th August, 1657, during which last period he and young Edward Montagu, afterwards Earl of Sandwich, were, by Blake's special request, on account of his failing health, "joined in the command of the Fleet," and, together, destroyed the Spanish ships and galleons under the Forts at Santa Cruz, in the Island of Teneriffe; an action which Clarendon describes as "so miraculous that all men who knew the place wondered that any sober men, with what courage soever endued, would ever have undertaken it." In his naval and military expedition with General Venables to the West Indies, from December, 1654, to June, 1655, when Jamaica was added to our Colonial possessions, Blake must also have carried this flag. Montagu, too, must have flown it in the "London," when in command of the Baltic Fleet, from 1657 to September, 1659, and also in the "Naseby" when nominally in joint command of the fleet with Monk, from the beginning of 1660 until the Restoration, though Monk was really in command of the Army on land, and Clarendon tells us it was through their joint action and instrumentality that Charles II took the place of his father on the throne.

The signal for the abolition of the Commonwealth Standard was given by the Parliamentary Proclamation of 8th May, 1660, which announced that "Immediately upon the decease of our late Sovereign King Charles the First, the Imperial Crown of the Realm of England, and of all the Kingdoms, Dominions, and Rights belonging to the same, did, by inherent birthright and lawful undoubted succession, descend, and come to His most Excellent Majesty King Charles II, as being lineally, justly, and lawfully next heir of the Blood Royall of this Realm, and that by the goodness and Providence of Almighty God, he is of England, Scotland, and Ireland the most potent mighty and undoubted King."

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"Immediately after the receipte of y<sup>r</sup> Lopp<sup>s</sup> letter, which came to my hand in the morning, I acquainted the Lord President therewith, who hath given order at Councell this evening for the making of such a Standard as yo<sup>r</sup> Honour desires, which shall be hastened and sente to you. They have also given way to my wayting on you for the reasons yo<sup>r</sup> Lordshipp mentions, w<sup>h</sup> I am exceeding willing to, considering the waite of y<sup>t</sup> affaire y<sup>e</sup> now like to passe yo<sup>r</sup> honor's hand. Only give me leave to begg the favour y<sup>t</sup> whatsoever else may be wanting especially for yo<sup>r</sup> owne shipp y<sup>t</sup> may compleate her for such a solemnitye as the transporting of such a hopefull Prince as our King, on all hands, is said to be, y<sup>t</sup> you would be pleased to order and command forthwith to be sent up, if conveniently it may be, Tuesday nexte y<sup>t</sup> so care may be taken to provide them presently accordingly. I thinke it were not unsuitable to so great a service to have a suit of rich flaggs and a large barge, if time would permitt. The business of the House to-day was as follows, viz: (1.) *An Acte for removing and preventing all doubts and disputes and scruples y<sup>t</sup> may arise as to the legality of this present Parliament*, and for the confirmation of the same, w<sup>h</sup> was sent up to the House of Lords for their concurrence. (2.) Divers Reportes came for the Councell, one amongst the reste was that a declaration might be put forth to command all magistrates strictly to put the Lawes in execution touching the keeping the peace of the Nation, there having been some persons of late y<sup>t</sup> have been butchered by a desperate practise. (3.) That the Speaker of the House of Lords be added to the other three Lord keepers, and y<sup>t</sup> care be taken, as soon as conveniently, *to alter the Seale*. (4.) *That y<sup>e</sup> King be forthwith proclaimed, much debated, but no time resolved on*. (5.) That twelve persons be sent over from the House of Commons with the King's letter, and the manner of choyce was this. The House was told over, there being 404 persons, besides four tellers; *every member put his note of 12 persons into a glass and they y<sup>t</sup> have most are to carrie it and to beare their owne charges*. I feare I have been too bold; my humble thanks for yo<sup>r</sup> daylie renewed and multiplied favour.

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Another Commissioner of the Navy Board—Colonel Thompson—writes to the "R<sup>t</sup> Hon<sup>ble</sup> Gen<sup>l</sup> Montagu on board the 'Naseby,'" under date of "Whitehall, 14th May, 1660":—

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"I received yours of the 12th this morning. I desire the Lord in mercy to give a prosperous voyage and grant H. Ma<sup>ty</sup> a safe passage into his Kingdom. *All possible care and expedition hath bin made in providing a Standard, Flags, and wast clothes for y<sup>e</sup> 'Naseby,' which are sent, and I hope will soon be with you. The £500 is apoynted and lies in y<sup>e</sup> hands of y<sup>e</sup> Treasurer of y<sup>e</sup> Navy to be paid to Mr. Creede, or whom yo<sup>r</sup> Honour or Mr. C. shall app<sup>t</sup>, by a bill of exchange or otherwise.*

"*The Comitioners of y<sup>e</sup> Admiralty give daily attendance to give dispatch of all things y<sup>t</sup> may bee needfull for accommodating y<sup>e</sup> Fleete in order to H. Ma<sup>ty</sup> transportation. If anything be wanting for that Service, whenever I may be serviceable my utmost gudeness shall be used, and I shall be ready and willing to favour you with all sinceritie who am,*

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never invented as a substitute for the Royal Standard as the proper flag of the Lord High Admiral when in command of the fleet in the absence of the Sovereign, as, in that case, not only would the Earl of Warwick have flown it in 1643 and 1648, but there would have been no necessity for the Council of State in 1649 to invent a new Standard, bearing the State's Arms, to take the place of the Royal one, for use of the joint Colonel-Admirals of the fleet nominated to replace the Earl of Warwick, and to execute afloat the functions of the Lord High Admiral; more especially as the clear-anchor seal of the Lord High Admiral was not discarded by the Council of State, which authorised its use by the Colonel-Admirals in sealing all commissions and dispatches issued by them.

There is, again, just the possibility that the Anchor Flag may have been invented to meet the case of the homeward voyage of Charles II and his two brothers, the Dukes of York and Gloucester, from Scheveling, between the 22nd and 25th May, 1660, so, when Mr. Pepys, in 1687, made inquiries of the persons then living who had been in the fleet at that time, "Mr. Homewood was positive that, when His Majesty came over, *he had another sort of Standard made by my Lord Sandwich in the 'Royal Charles'*" (probably the provisional one described in Pepys' diary); "the Duke of York *with the Lord Admirall's flag or Union in the 'London' at the foretopmast head*; and the Duke of Gloucester in the 'Swiftsure,' with the Union Flag at the mizentopmast head."

If it were not for the words "*or Union*" after "the Lord High Admiral's flag," I should have felt no doubt that this was the origin of the Anchor Flag, but this addition leaves the question unsettled. Moreover, Mr. Homewood's memory failed him in the name of the King's ship, which was the "Prince."

It seems strange that Mr. Pepys should have required such evidence as that of Mr. Homewood, as not only His Royal Lord Admiral James II (in 1687) had been present on the above occasion but he was himself acting as secretary to Sir Edward Montagu in the "Prince."

It is certain that the order of precedence mentioned by Homewood, viz., the Royal Standard at the main, the Anchor Flag (?) at the fore, and the Union at the mizen, *i.e.*, the personal flag of the Sovereign, the personal flag of the Lord Admiral, and the national colours, was repeated 12 years later when the King, the Duke of York, and Prince Rupert were present together, and that the three flags in the same order on board one ship have since always been worn as representing *the Sovereign on board the Lord Admiral's ship*, until the year 1833, when the present practice was adopted of making the three flags represent the Sovereign on board *any* of his or her yachts or vessels of war.

As both the Duke of York and his younger brother (Henry of Oatlands, Duke of Gloucester, who died in 1661, aged 20) would have been entitled to fly the Royal Standard if the King had not been present in command on leaving Scheveling, and as Homewood says that he is positive that Gloucester carried the Union at the mizen on

that occasion and the Duke of York either a Standard or the Union at the fore, the voyage to England in May, 1660, may, as already stated, have been the first occasion both of the use of the Anchor Flag and of the order of precedence of it as regards the other two. I cannot, however, find any earlier mention of its use than in the journal of Captain John Narborough, appointed first lieutenant of the "Prince" on 5th January, 1672, when that ship was commissioned by Captain and Navy Commissioner Sir John Cox to carry the Standard of the Duke of York, on the breaking out of the second Dutch war. Narborough had been made a lieutenant in 1664 in the "Portland," and had served in that rank in her and in the "Triumph," in the "Royal James," the "Old James," the "Fairfax," and the "Victory" successively, being in the latter ship (then carrying the flag of Sir Edward Spragge) in the great battle of the 25th June, 1666; from 26th September, 1669, to June, 1671, he had been in command of the "Sweepstakes," of 36 guns and 80 men, engaged in a voyage of discovery in the Pacific, passing through the Strait of Magellan, which resulted in a valuable and well-executed chart of the South American coast, published by Seller, the Royal Hydrographer of that day. Narborough was promoted to be flag captain, when, three months after his appointment as first lieutenant of the "Prince," his captain, Sir John Cox, was killed at the battle of Solebay (May, 1672). His journal of the daily proceedings on board the "Prince," from the date of his joining her, on 5th January, is a compendium of information as to the routine and internal economy of a first-rate man-of-war, and especially of a Lord Admiral's flag-ship of those days, including details of the actions fought with the Dutch. He notes down what flags were hoisted on board, and on what occasions, telling us that when the King came on board the "Prince" at the Nore in the year 1672 the following formalities were observed:—As soon as the King, flying the Royal Standard in his yacht, came in sight of where the "Prince" was lying at anchor, flying the same Standard at the main, the latter was hauled down and the "Red Anchor Flag," as Narborough calls it, substituted, and as soon as the King put his foot on board the "Prince" the Anchor Flag was shifted from the main to the fore, the Royal Standard being hoisted at the main and the Union Flag at the mizen; but that when the King returned to his yacht he only hoisted the Royal Standard on board the latter, the Duke re-hoisting the Anchor Flag at the main of the "Prince."

This practice was invariably followed until 4th July, 1833, the three flags being hoisted as above when the King was on board the Lord Admiral's ship, or that in which the Board of Admiralty (when the Lord High Admiral's office was in commission) was flying the Anchor Standard.

On 4th July, 1833, an Order in Council was issued, instituting the present practice of hoisting the three flags in *any ship in which the Sovereign embarks*, probably because it was inferred by the Board of Admiralty, which at that time had occasion to inquire into the matter, that the reason why Charles II did not hoist the three flags in his

yacht in 1672 must have been because she had only one mast. But we know, from Mr. Pepys' carefully drawn-up regulations for the wearing of flags by ships of war, that this was an erroneous view, and, in any case, the Anchor Flag should not, *now*, be worn by the Board of Admiralty in *another* vessel in the presence of the Sovereign flying the three flags, as is now done, if the origin of the latter being denoted by the three flags be considered.

It seems that, in 1833, some order on the subject of wearing these flags had become necessary, as, prior to July 4th, it had become a common practice for flag-ships to hoist them at the main, fore, and mizen on all royal anniversaries, this being expressly taken to mean that the Sovereign was *not* on board, the Standard hoisted by *itself* signifying the reverse.

Narborough tells that, on one occasion, the King and Queen were present together with the Duke of York and Prince Rupert, the King, Duke, and Prince having each their yachts in addition to the flag-ship.

The Queen slept on board the "Prince," and the Royal Standard was hoisted and kept up all night at the main; the King slept on board his yacht, where the Royal Standard was also hoisted; the Duke hoisted the Red Anchor Standard on board his own yacht, and Prince Rupert hoisted the Union Flag on board *his* yacht.

When the King left the anchorage the Royal Standard was re-hoisted on board the "Prince," if the Duke was on board, and, if not, a pendant at the main, as now.

The only change made in the form of the Anchor Flag since 1672 was that, when James II assumed the office of Lord High Admiral, which he retained until his abdication, he added a crown over the anchor to represent his royal authority, and, also, put a crowned anchor in the fly of the ensign of his yacht.

During the 14 years succeeding the Revolution of 1688 the office of Lord High Admiral was in commission. The first official mention, so far as I am aware, of a *Board of Admiralty* having used the Anchor Flag, appears in the following Admiralty Order to the Navy Board:—

"Admiralty Office,  
"22 March, 1691.

"GENTLEMEN,

"We do hereby require and direct you to cause a fitting red silk flagg, with the anchor and cable therein, to be provided against Tuesday morning next for the Barge belonging to this Board.

"Your affectionate friends,

"C. C. (Lord Cornwallis), J. L. (Leake),  
H. B., F., R. A., C. R."

The next Lord High Admiral after King James II was Thomas, Earl of Pembroke and Montgomery, who succeeded to office on 18th January, 1702, seven weeks before the death of King William III. On the accession of Queen Anne on 20th May, 1702, she revoked the Earl of Pembroke's Patent, and appointed her Consort, Prince George of Denmark, as Lord High Admiral in his place. But, during this short interval, a question had arisen regarding the proper flag for the Lord High Admiral to fly when in executive command of the fleet.

Mr. Pepys, on quitting the Admiralty at the Revolution, left



nothing behind him which he could possibly carry away, having the most supreme contempt for his successor, Mr. Phineas Bowles (an ignoramus), who was himself succeeded as Secretary of the Admiralty, after a short period of office, by Mr. Jas. Sotherne; he by Mr. William Bridgeman, and the latter by Mr. Josiah Burchett, both Sotherne and Burchett having been servants to Mr. Pepys. In 1702 there remained at the Admiralty Office neither a knowledge of the old precedents nor any official records to refer to, although Pepys had frequently been asked for them.

The following is Burchett's own version of the occurrence referred to regarding the Lord High Admiral's flag. He had then been Secretary to the Admiralty since 1695 A.D.:—

"For a considerable time before the declaration of war with France and Spain (which was on the 4th May, 1702) the greatest diligence was used in getting the Fleet ready for Service; for it was well known that the French were making preparations for acts of hostility. There was more than ordinary pains taken in equipping a very considerable squadron of ships for an Expedition to Cadiz, in conjunction with the Dutch, which the Earl of Pembroke was (as High Admiral) to have commanded in person, had not H.R.H. the Prince of Denmark (as I have already informed you) been appointed to that office. *There were some doubts whether his Lordship should have borne at the maintopmast head the Royal Standard of England, or the Union, or, more properly speaking in the maritime phrase, the Jack Flag commonly worn by those who have under the L.H.A. been appointed Admirals of the Fleet. Most of those who pretended to judge best of this affair inclined to the latter, but I, luckily, having then in my possession an original journal kept by the Secretary to the Duke of Buckingham in his expedition to the I. of Rhé, it plainly appeared thereby that he bore the Standard as several High Admirals had done before by particular warrants (as it is presumed) from the Crown, empowering them to do so.*"

In accordance with this precedent warrants were issued to the Navy Board by the Earl of Pembroke on 19th February and 6th March, 1702, the former directing it to "provide a Standard for my L.H.A. the Earl of Pembroke, such as is usually worn by the Royal Family," and the latter "a silk flag for the head of his boat such as properly belongs to the L.H.A. of England."

(It is to be noted that no question was raised at this time as to whether the *Anchor Flag* should be hoisted as the symbol of executive command by the L.H.A., but only as to the *Union*.)

King William III died on 8th March, 1702, and Lord Pembroke wrote to the Navy Board on 20th March, countermanding his order for the Standard, as his Royal warrant to hoist it was void by the King's death, and ordered Anchor Flags instead, apparently with the view of hoisting his personal flag in executive command until the Queen's pleasure was known; but he does not appear ever to have done this.

Perhaps it was just as well that the executive command of the fleet was now given to the distinguished seaman Sir George Rooke,

who took it from the Earl, who, however able an administrator, had not been bred to the sea any more than his successor in the office of Lord High Admiral, the Prince Consort, who wisely stayed at home. The latter became the first *Lord High Admiral of Great Britain* on 28th June, 1707, and at his death, on 29th November, 1708, the Earl of Pembroke was created Lord High Admiral a second time, but resigned on 7th November, 1709, without having had any occasion to hoist his flag at sea.

Since that time we have had no Lord High Admiral not a Royal personage, and only one in the latter capacity, viz., H.R.H. William Duke of Clarence, afterwards King William IV, who was Lord High Admiral from May 2, 1827, to August 12, 1828, when he resigned.

There are only two occasions on which the Red Anchor Standard has ever been hoisted in executive command of a fleet except in presence of the Sovereign; on only one of these was it carried by an individual, and neither precedent is likely to be repeated in the future.

The first was, by special authority of the King, given to James Earl of Berkeley (First Lord of the Admiralty from 1718 to 1728, P.C., K.G., and Vice-Admiral of England) on 13th March, 1719, when he was given the additional rank of "Admiral and Commander-in-Chief of His Majesty's Fleets," and hoisted the Anchor Standard at the main of the "Dorsetshire" at Spithead by special direction of George I. He sailed from St. Helens on 29th March with a squadron of seven line-of-battle ships to join another of the same force under Sir John Norris between Scilly and the Lizard, and went as far as Cape Clear, returning on April 4 to the Channel, and to Spithead on April 15, when he struck his flag and never served afloat again.

The author of Sir John Leake's life makes the following observation on this appointment:—

"The Earl of Berkeley, being then Vice-Admiral of Great Britain and First Lord Commissioner of the Admiralty, *endeavoured to come as near L.H.A. as possible, both in power and state*; by a particular warrant from the Crown he hoisted the L.H. Admiral's flag (as it is called), the first time, I believe, it was ever worn in command at sea, and had three captains under him as L.H.A. Littleton, then Vice-Admiral of the White, being his first captain. This appointment was rendered the more extraordinary from the circumstance of Sir Jno. Norris, who was a senior flag officer, being at that time employed in the Channel with no such distinction."

Charnock ("Biographia Navalis") says:—"The personal and political consequence of this noble personage was greater, we not only say than any of his contemporaries, but had, apparently, more weight than that of any subject since the Revolution. We have in no instance found the established Rules of the Service so repeatedly broken through as in order to make room for his particular promotion; when scarcely 30 years old he was advanced to the high naval rank of Vice-Admiral of the Blue, although there were at that time very many commanders in the navy who had most deservedly obtained the rank of captain some years before this noble earl had even the com-



mission of a lieutenant, and yet, nevertheless, were not advanced to be flag officers till 20 years after him; some not till even a more remote period.

"This distinction and favour is the more extraordinary as we do not ever find it practised except in the instance of those sons of Sovereigns who have made a choice of a naval life."

Sir John Norris, whose portrait is in the Painted Hall at Greenwich, was made a captain in 1690, Rear-Admiral in 1707, Vice-Admiral in 1708, Admiral in 1709, Commander-in-Chief in the Mediterranean 1711, a Lord Commissioner of the Admiralty 1718, and Vice-Admiral of Great Britain in 1739, 20 years after his junior officer, the Earl of Berkeley. He died in 1749.

The Earl of Berkeley, as I have already observed in relating the "History of the Admiralty Badge," was responsible for the change from clear anchor to foul in 1725, being then First Lord Commissioner of the Admiralty; as, also, for the introduction of the foul anchor into the Admiralty flag as a substitute for the clear one of the previous half century. The latter has been restored to the flag, but still awaits a Royal mandate for its restitution to the Badge and its adoption in the uniform of the Navy.

I believe the change from clear to foul anchor to have taken place in the following manner:—

Coincident with the completion of the repairs to the Admiralty buildings by Ripley, and the creation of the portico which bears the foul-anchor device, was the completion of the pictorial work in three folio volumes, entitled "Vitruvius Britannicus, or the British Architect," by the Scotch architect to the Prince of Wales, Colin Campbell, who built Wanstead House in Essex and the Rolls House in Chancery Lane. This work, containing 300 illustrations of English buildings, was commenced in the year 1717 and finished in 1725.

It included a drawing of the water-gate of the old York House at the bottom of Buckingham Street, Strand, which still remains in its old position and adorns the gardens of the new Thames embankment, beneath which lie buried the flight of stairs leading from the gate to the river two centuries ago.

On the river side of the water-gate, which consists of a central arch with a smaller one on either side, the former being surmounted by an escallopp shell, and the two latter by the lion supporters of the Villiers family, are the Villiers' arms (York House came into the possession of George Villiers, first Duke of Buckingham, in 1621). On the north, or Buckingham Street, side of the gate are the same arms over the central arch with the Villiers' motto, "Fidei coticula crux," and over each of the smaller arches is the present Admiralty badge. Campbell says that the gate, which was the work of Nicholas Stone, the sculptor (d. 1647), was from a design made by Inigo Jones in 1626, during the Lord High Admiralship of the Duke, and about four years after Jones had completed the Banqueting House, now the Museum of the Royal United Service Institution.

The water-gate was, apparently, the only portion of the additions and alterations made to York House between the years 1621 and

1626, designed by Inigo Jones, the remainder being due to Sir Balthasar Gerbier, the Duke's own architect.

Colin Campbell lived at Whitehall and died there in the year 1729. He was a friend of Burchett, the Secretary to the Admiralty, and the latter, whose attention was called to the anchors by Campbell's plate, and who prided himself on having once possessed a MS. copy of the Duke of Buckingham's journal during the I. of Rhé voyage (which he seems to have "annexed" from the library of his master, Mr. Pepys), was also, probably, impressed by Campbell with the idea that, as the foul anchor was represented in juxtaposition with the arms of the Duke, and as part of his insignia, on the water-gate in 1626, this anchor must have a prior claim to the clear anchor in point of antiquity; and that the enlargement of the Admiralty buildings should be seized upon as a suitable occasion for making the substitution.

But, as I have shown in my paper on the Admiralty badges, the use of the anchor by the Duke of Buckingham as a badge of office in his small official seal did not commence until the very year of his death, 1628, two years after the design of the gate; and, moreover, the anchor and cable represented on the gate are not in accordance with the arrangement of cable adopted by the Duke and by the Boards of Admiralty which succeeded him between the years 1628 and 1638.

The foul anchor was, probably, designed by Inigo Jones, as an architectural ornament suggestive of the Duke's association with the navy, and in ignorance of the light in which a foul anchor would be looked upon by the profession; nor, perhaps, would the Duke, at that time, be much better informed.

In any case, it seems to me that the clear anchor, having been established in 1638 by one of the ablest of our Lord High Admirals as the proper badge of the executive administration of the fleet, and so retained for a period of 78 years, has claims which ought to have outweighed any others based on a priority deduced from an architectural representation of the Villiers' arms, executed only a few years earlier.

The second occasion on which the Anchor Flag was hoisted as a symbol of executive command afloat was in the month of May, 1869, when the Right Honourable Hugh C. E. Childers, then First Lord of the Admiralty, embarked with Vice-Admiral Sir Sydney Colpoys Dacres (Second Lord Commissioner to the Admiralty), Captain F. Beauchamp P. Seymour, R.N. (Private Secretary to the First Lord Commissioner to the Admiralty), and Captain G. Ommanney Willes, R.N. (Chief of the Staff), on board H.M.S. "Agincourt," 26 guns, at the Nore, on the first occasion, since its institution, of calling out the Royal Naval Reserve.

This was not only an innovation as regards the use of the Anchor Flag, but was, for the first time in naval history, an assumption of executive authority afloat on the part of a civil administration—the Board of Admiralty.

In 1719 the only novelty was the Royal Authority given to an Admiral and Commander-in-Chief of H.M. Fleets to hoist the Anchor Flag at the main instead of his proper flag—the Union.

In 1869, the executive use of the Anchor Flag was, when first hoisted on 15th May on board the "Agincourt" for a fortnight's cruise with the Reserve, partly covered by the fact of there being on board that ship a Rear-Admiral in *nominal executive* command, with a junior officer of the same rank on board another ship of the fleet, which consisted of the combined Channel and Reserve Squadrons.

All orders were nominally issued by the two members of the Board through their Secretary, in the usual Admiralty form, to the Rear-Admiral in Command, Sir A. Cooper Key, and from the latter to his fleet. In this fashion the Board appeared to be exercising administrative functions only and not executive; this form was, however, not strictly adhered to. Three months later in the year the same two Lords of the Admiralty hoisted the Anchor Flag on board the "Agincourt," in undisguised executive command of the combined Channel and Mediterranean Fleets, the former being under the command of Vice-Admiral Sir T. M. C. Symonds, and the latter under the flag of Vice-Admiral Sir Alexander Milne (both of which officers are still living as Admirals of the Fleet), and carried out a series of naval evolutions.

This innovation was by no means relished by the two Admirals in command, and, being considered contrary to the spirit of the Articles of War, which assume every person in executive authority in the fleet to be "in actual service and full pay," as well as professionally competent, met with general disapproval.

Had Sir Sydney Dacres been placed *hors de combat* at any time during these evolutions, or even during the period of assumption of executive authority, the Civilian First Lord would have found himself placed in the position of being expected to direct the movements of a combined fleet commanded by the two most experienced and distinguished seamen of the day.

In the 16th and 17th centuries, when the Lord High Admiral went to sea in executive command of the fleet, his official deputy was the Vice-Admiral of England, who was, in virtue of his office, President of the Navy Board, which consisted, besides himself, of professional officers of great experience, having the management of the Royal Dockyards and the fitting out of ships practically in their hands. The abolition of the Navy Board, however, in 1832, changed all this; and the reduction then made in the professional element at naval headquarters in London, apart from other considerations, will not admit, without great inconvenience to the Service, of the Board of Admiralty being split up into two sections, one of which to be in executive command afloat, and the other administering at Whitehall. It is not probable, therefore, that we shall again, under any conditions, see the Anchor Flag hoisted in executive command afloat by a Board of Admiralty; and, if a Lord High Admiral be once more nominated to the command of a fleet, it seems that, if invariable precedent is to be followed, he would receive, whether as a member of the reigning family or as a humbler subject, a Royal mandate to hoist the Standard at the main as his proper symbol of command.

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## A VOLUNTEER BRIGADE CAMP.

By Major B. A. SATTERTHWAITE, 2nd Battalion L.N. Lan. Regt.

THE establishment of the Volunteer brigade system in 1888 marked an important period in the organization of the troops for home defence. It is not too much to say that this system granted a new lease of life to the Volunteer Force, and renewed its vitality to an enormous extent. The element of reality, which the Volunteer (highest and lowest) loses, has been brought home to the whole force; the battalions encamp alongside those who will be their comrades in war, and under the leaders and staff appointed to command and direct them. The go-as-you-please nature of the old regimental camp has given place to a more methodical and practical training; the assembly of larger forces has in itself done away with many unrealities in manœuvre. The battalions have learned, not only from their staff but from one another; those whose camping experience has been limited to occasional regimental camps have learned much from rubbing shoulders with their more experienced neighbours, and a general process of levelling up has undoubtedly been inaugurated.

Of course, the time of training in brigade (eight days) is all too short, especially when the waste time is taken into consideration; the days of entering and leaving camp, the Sunday, and in some cases the inspection day, are not available for the tactical training of the troops. Thus four, or at most five, days are at the brigadier's disposal, and such are the conditions of the previous battalion training that in many cases, especially in scattered corps, two-thirds of each day have to be devoted to battalion drill under the regimental officers. Many of these battalions only come together in their camp week, some only assemble at other times at very rare intervals, and none can be considered to be thoroughly grounded in battalion drill and manœuvre.

Many brigades are unable, from financial and other causes, to avail themselves of that best of all trainings, a week's work at Aldershot, and are consequently thrown on their own resources—on their brigadier for instruction, and on their staff for administration.

Though less valuable than a week's training under the Aldershot staff, such a camp has its advantages; indeed, it tests the administrative capacity and self-reliance of the brigade staff even more highly than a camp with Regular forces, where so much is done for the Volunteers by the Regular departments.

The planning of the instruction to be given on the four or five days available requires careful consideration beforehand, and it will probably be granted that the whole of the time should not be devoted to ceremonial and close brigade drill. An account of a camp held

under rather favourable local circumstances will probably be of interest to the officers of other Volunteer brigades.

The Portsmouth Volunteer Brigade is composed of five battalions, with an enrolled strength (31.10.93) of 4,096; of these, four battalions only, with an enrolled strength (31.10.93) of 3,514, were able to be present, and the number of men who passed a minimum period of three days in camp was 2,679; the daily average was 2,412.

A very good camping ground was secured, at a rental of 45*l.*, at Talbot Village, 2 miles from Bournemouth. The acreage allowed full room for a drill field for each battalion, in addition to its camping ground, as well as a brigade field of suitable size. The manoeuvre ground, roughly, 3 miles by 2, was close at hand, and was kindly placed at the disposal of the brigade by the several land-owners; it was composed of rough moorland, covered with heather and fir copses, with sufficiently varied features to give excellent practice in minor tactics.

Water was supplied from the main of the Bournemouth Water-works, which ran along the road in front of the camp. The cost was, roughly, 2*s.* 6*d.* per 1,000 gallons, the charge for stand-pipes, &c., extra.

The supplies were obtained by tender in the neighbourhood, and, with the exception of wood, were very satisfactory; the prices were as follows:—Beef 7*d.*, mutton 7½*d.* per lb.; bread, 8*d.* per 2-lb. loaf; butter, 1*s.* per lb.; milk, 11½*d.* per gallon; oats, 21*s.* per qr.; hay, 6*s.* 9*d.*, straw, 4*s.* 6*d.* per cwt.; wood, 22*s.* 6*d.* per load, 18*s.* 6*d.* per bundle.

The average cost per man per day was 1*s.* 5½*d.* gross.

The outlay for rent, water, and sundry brigade expenses was partly met by a generous contribution of 131*l.* 5*s.* from the Town Council of Bournemouth.

The supply detachment undertook the issue of rations, groceries, fuel, and forage from the brigade store—a barn on the farm. The ration board assembled at 6.30, and fatigue parties from units paraded at the store at intervals of 15 minutes. After the first morning, these arrangements worked smoothly.

The transport was furnished by the W, P, and B battalions, who respectively supplied for the whole week—

	Vehicles.	Horses.	Officers.	N.C.O.'s.	Men.
W .....	6	16	2	4	50
P .....	2	6	—	2	12
B .....	7	15	1	3	17
Total .....	15	37	3	9	79

For the first and last days the B battalion provided extra teams. The wagons and teams were lent by the local farmers and contractors, and were rationed during the week by the brigade. The transport encamped in its own lines, and drew rations as a brigade unit, the accounts with the several battalions being subsequently adjusted.

The brigade bearer company was newly raised this year from the W battalion. It also encamped separately, and performed all the duties of a field hospital in camp and at manœuvre. It was provided with "The Tortoise Field Hospital Equipment" (a tortoise tent-wagon with store), the property of the officer commanding the bearer company.

The machine-gun (Maxim), the property of an officer of the W battalion, was considered a brigade unit for tactical work.

The work of the cyclists will be fully described hereafter, but for administrative purposes they encamped with their own battalions, coming under the senior cyclist officer for brigade parades. A small marquee for storing and cleaning cycles is desirable in each battalion, and a brigade workshop for repairs.

Three of the battalions sent advanced parties to pitch their camps, dig kitchens, &c., the fourth was able to get its men early on August 4, and so carried out these duties as a battalion. No outside help was used for this work in any of the battalions, except the preparation of seated and covered latrines, a point on which especial stress is laid.

All the battalions were assembled in camp by 9 P.M. on August 4.

*Sunday, August 5.*—The brigade assembled for Divine Service under the senior chaplain of the local battalion on Sunday morning, and subsequently the brigadier inspected each camp in detail.

On subsequent days the system was, as a rule, to leave commanding officers to exercise their battalions at their discretion at the two morning drills, and to assemble the brigade for manœuvre in the afternoon.

In addition to its drill field, each battalion was assigned a portion of the manœuvre ground for use in the morning: a different portion being allotted to each in turn.

*Monday, August 6.*—Monday morning broke hopelessly wet, and the early morning drill was perforce abandoned. The weather cleared after breakfast, and the grass being very long and wet, the brigade was ordered to parade at 10.30 A.M. for route marching. Headed by the cyclists and followed by the bearer company and transport, the column marched through and round Bournemouth, returning at 1 P.M.: the Brigadier-General saw the battalions defile before him on to their regimental parades on their return.

The instruction in brigade attack, which had been projected for this afternoon, was abandoned, and battalions were handed over to their commanding officers for the afternoon drill.

The cyclists, however, carried out the work originally allotted to them, the reconnaissance of the River Stour.

The general idea for this and the following days' work was as follows:—

PORTSMOUTH VOLUNTEER INFANTRY BRIGADE.  
BOURNEMOUTH, 1894.

*Scheme of Operations.*

GENERAL IDEA.

An invading force landed at Bournemouth is encamped at Talbot Village. A defending force is assembling at Wimborne.

*Monday, August 6.*—Reconnaissance of River Stour by cyclists of invaders.

*Tuesday, August 7.*—The defenders reconnoitre towards Bournemouth, and are attacked by the brigade.

Defenders—brigade cyclists. Invaders—brigade.

*Wednesday, August 8.*—The force at Talbot Village is covered by an outpost line, which follows the line of the Stour as far west as Longham Bridge, and thence runs south-west towards Poole. Defender at Wimborne and Broadstone.

Defenders—1st V.B. and brigade cyclists. Invaders—2nd, 3rd, and 4th V.B. and machine-gun.

*Thursday, August 9.*—The invader seizes Poole Harbour and pushes northwards towards Broadstone Junction.

The defender at Wimborne is reinforced.

*Friday, August 10.*—A convoy of stores landed by the invaders at Poole is sent to Talbot Village, escorted by the 4th V.B.

The defender advances a brigade to Canford Magna.

Defenders—1st, 2nd, and 3rd V.B. and their cyclists; machine-gun. Invaders—4th V.B. and its cyclists; brigade transport.

Throughout the operations the defenders, including cyclists, will wear white haversacks as a distinguishing mark; the invaders will not wear haversacks.

At 2.30 P.M., therefore, the cyclists assembled to act on the following orders:—

Monday, August 6.

*Reconnaissance of the River Stour by Invaders.*

(Orders.)

TALBOT VILLAGE,  
2 P.M., August 6, 1894.

O.C. Cyclists P.V.I.B.

1. Reconnoitre the line of the Stour from Longham to Holdenhurst with a view to the advance northwards of a force of all arms.

(a.) Report on the bridges and other existing means of crossing; also on the best positions for pontoon or other temporary bridges.

(b.) Report on the nature of the country north of the river as far as East Parley Common and Avon Common, and on the roads running north and north-east.

(c.) Report generally on the River Stour between the points named.

2. (a), (b), and (c) should be allotted to different groups of cyclists.

3. Reports to be rendered to the brigade office by 9 P.M. to-night.

By order,

(Signed) A. B. C., D.A.Q.M.G.,  
Invading Force.

The cyclist officer divided his command (104 cycles) into groups, which were ordered to move independently to their several tasks and



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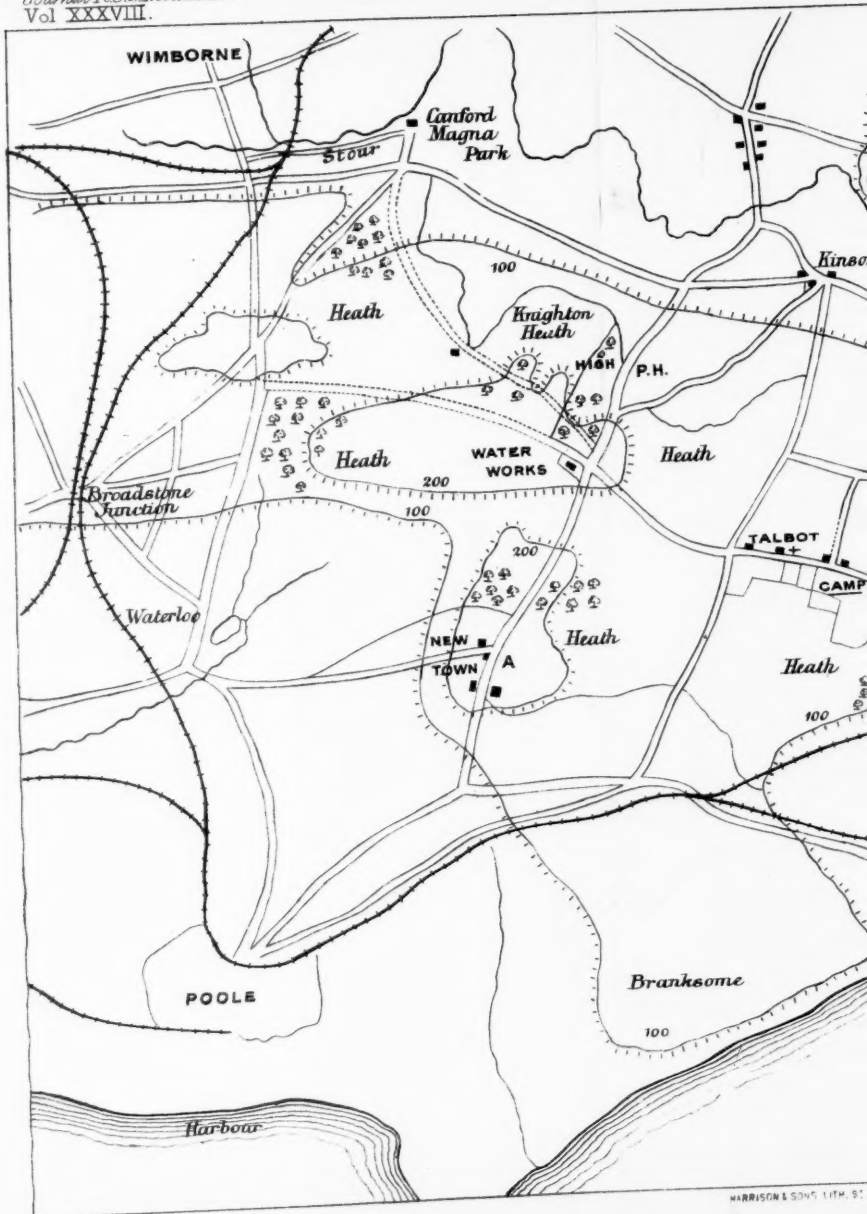
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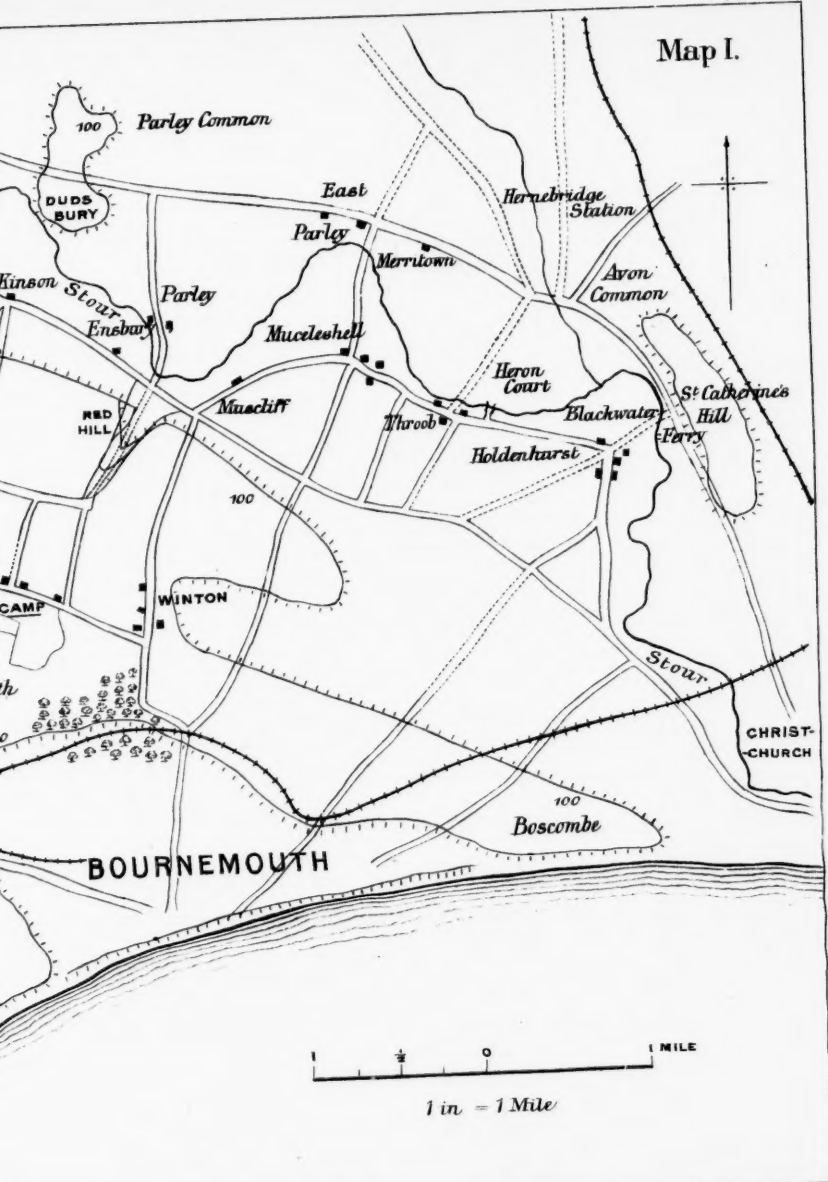
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to rendezvous with their reports at 5 P.M. at Longham Village. The brigadier rode to this point and watched the conduct of this part of the exercise.

At 9 P.M. the report was rendered as follows, and at 10 A.M. the next morning the following remarks were hectographed and issued:—

From Officer Commanding Cyclists,

To Sir W. Humphery, Bart., K.C.B., Commanding the Portsmouth Volunteer Brigade.

In accordance with instructions I paraded the cyclists at 2.30.

2.40. I despatched the 3rd Hants Cyclists and half of the cyclists of the 4th Hants to Holdenhurst, with instructions to gain any information they could concerning the River Stour from that point to Muscliff on the south, and East Parley on the north.

2.43. I despatched the 2nd Hants Cyclists and the second half of the 4th Hants to Longham, with instructions to survey the River Stour from that point to the same villages as above.

2.53. I despatched the 1st Hants Cyclists to Holdenhurst, with instructions to survey the roads running north and north-east of the River Stour, and also the country north as far as East Parley Common and Avon Common.

All had instructions to report themselves to me at Longham by as near 5 o'clock as possible.

Reports were handed to me at Longham between 5 o'clock and 5.45.

1st Hants reported themselves to me at 6.45. They found that the road from Blackwater Ferry to East Parley Common is excellent for all arms; no steep gradients. Cultivated ground between Merritown and Merritown Heath. The ground at East Parley Common is high, with more than gradual descent to Avon Common.

Troops of all arms crossing at Red Hill or Herne Bridge (private bridge) could advance on good roads to Herne Bridge Station, covering their advance with artillery posted on St. Catherine's Hill and a range of hills known as the Rhododendron Forest.

Artillery could also be posted on Merritown Heath, which would command any advance north or north-east.

It was found that troops could not possibly cross at Blackwater Ferry.

It was found that troops could cross the Heron Court Bridge, but the approaches could not be governed by any artillery. We must consequently give up the idea of getting any men across this part: we have already secured the upper roads.

Troops could not cross the river at Longham Mill Bridge if artillery were stationed at Dudsbury Camp, which is a hill about 70 feet above the river, and thoroughly commands the bridge and the country as far as Ensbury.

I should recommend Red Hill Fort as being the most likely place in which an invading force could cross the Stour, provided the advance were covered by guns stationed on the rising eminence there. They would govern a very flat country. The ford there is about 100 feet wide; the depth of the river there was ascertained by sending a native through the water, and the deepest part was found to be 3 feet 6 inches. The ford would probably be impassable if heavy rains were coming down, and I fear it would be useless pontooning under those circumstances, owing to the marshy state of the banks on the north side.

In the case of flooding, I should imagine the only available place for pontooning would be at Thorp Ford. This ferry is screened, to all intents and purposes, from artillery fire. Ford 100 feet wide.

River Stour—runs about 3 to 4 miles an hour; width is from 40 to 100 feet. Bed of river—gravelly. Banks on both sides—reedy.

I enclose a few reports showing that the ground was thoroughly examined.

GEO. CAPPEE, Captain,  
Comm. of Cyclists.

## MEMORANDUM.

1. The reconnaissance of the Stour was conducted yesterday by the cyclists with great intelligence: it was well organized by Captain Capper, and well carried out by the cyclists under his command. The report was clearly drawn and punctually rendered.

2. The following points in regard to the report were, however, noted for future guidance:—

- (a.) All names of places and proper names should be printed (thus: LONGHAM.)
- (b.) The construction, &c., of the various bridges require rather fuller detail.
- (c.) Temporary bridges comprise not only pontoon, but spar and barrel bridges: the places suitable for these were not clearly indicated: the materials available for the construction of spar and barrel bridges were not noted.  
It must be remembered that an invading force would have to use many points of crossing.
- (d.) In stating how a crossing can be covered by artillery fire, it is well also to mention at what range.
- (e.) Reports rendered on notebook leaves should be numbered and pinned together.
- (f.) The arrival of the 1st V.B. Cyclists at Longham should probably be 5.45, not 6.45 as stated in report.
- (g.) The fact that Blackwater Ferry is reported unsuitable for troops renders it all the more necessary that the positions for temporary bridges should be selected, in order that the good road may be made use of.
- (h.) The position of Redhill Ford not being marked on the official map, should have been minutely described in the report.

Talbot Village,  
8.8.94.

On this day two other methods of using cyclists were initiated. The first was the use of carrier pigeons in connection with reconnaissance. The President of the Hants and Dorset Flying Club kept some young birds at Talbot Village, which he kindly placed at the disposal of the brigade. Strapping the baskets to their machines, the cyclists were able to report to camp their arrival at distant points in a very short space of time; this time would have been shorter had not the birds been disturbed by some transport horses which were quartered in the stable under their traps.

The other branch in which cyclists were exercised on this day was in photography. The country was almost entirely unknown to the several commanding officers; on the subsequent days they would have to rendezvous at places several miles from camp, where they had never been before. It was a distinct help to them to receive with their orders a photograph of their rendezvous point. This work was carried out with great zeal, rapidity, and intelligence by two cyclists of the S battalion, and was all the harder as they had to go to Bournemouth to develop and print their work. A portable developing plant will no doubt be forthcoming another year.

*Tuesday, August 7.*—Tuesday morning was devoted to battalion work, the brigadier riding round and watching the drill in attack formation of the S and B battalions.

In the afternoon the brigade was exercised in the following scheme,

which was designed to initiate a brigade attack over fairly easy country. The cyclists formed the enemy (defenders).

Tuesday, August 7.

*Reconnaissance by Defending Force.*

(Orders.)

WIMBORNE,

2 P.M., August 7, 1894.

O.C. Cyclists. 1

Reconnoitre the invader's position, first at the waterworks, then towards Talbot Village. Endeavour to draw him out, and make him show his strength. If attacked, your line of retreat is by Canford Magna, on Wimborne.

By order,

L. M., *Brigade-Major,*  
*Defending Force.*

N.B.—Your force is at the northern boundary of Knighton Meath, at 3 P.M.

Tuesday, August 7.

TALBOT VILLAGE,

2.30 P.M., August 7, 1894.

G.O.C. Portsmouth V.B.

The enemy's cavalry and cyclists are advancing from Canford Magna.

Advance and drive them back, and find out if their movement covers the advance of infantry and artillery.

By order,

D. E. F., *A.A.G.,*  
*Invading Force.*

N.B.—Your force will not leave the western boundary of the camp before 3 P.M.

The road to the waterworks formed the pivot of attack, the waterworks being the preliminary objective. The right half-battalion of the W battalion, with its centre (and machine-gun) on the road, was the directing unit of the 1st line; its left half-battalion prolonged to the left, and the S battalion to the right. The P battalion formed 2nd line, and the B battalion 3rd line.

The attack progressed as the cyclists fell back on the waterworks, which the 2nd line assaulted, and the 3rd line then took up the pursuit through High Wood. The cease fire sounded at 4.30.

Casualties were ordered to fall out freely, individual officers and men being "killed" by the assistant umpires, this system being considered more true to nature than the wholesale slaughter of sections and companies. A "killed" mounted officer collected the casualties after the 3rd line had passed to the front.

The assistant or "fire discipline" umpires were appointed from the dismounted officers of the brigade, and one was attached to each battalion. In addition to their "killing" duties, they were ordered to report on the various points of the fire discipline of the battalion to which they were attached. This system proved very successful—an interesting experience to the company officers chosen for the work, and a valuable assistance to the chief umpire.

At this day's conference the following points were noticed :—<sup>1</sup>

Units of 1st line were needlessly concentrated previous to deployment; full advantage was not taken of existing cover at this point.

An attack on the left flank of the advancing troops was promptly dealt with by one company of the W battalion, who worked rapidly across an intervening valley, and drove in the small party whose fire was causing the annoyance.

The distances between the various lines were well kept, and the usual fault of the lines advancing too close on one another was avoided.

The attack was carried out without hurry or confusion.

The cyclists as enemy were well handled, but showed a tendency to move too far from their machines, thus having a long retreat under fire to their machines when it was necessary to regain them. The retreat generally was well organized, and units supported one another.

The umpires and "fire discipline" umpires reported: "Silence in ranks generally good, but too much talking by officers and N.C.O.'s; officers and section leaders too often standing; words of command generally good; judging distances fair; alteration of sights on advancing indifferent; 'rest' position not consistently used; reinforcements well conducted; transfer of command when leaders were 'killed' satisfactory; mounted officers dismounted too late, but used no undue interference."

*Wednesday, August 8.*—Wednesday's exercise in outpost work seemed at first likely to be spoiled by the rain, and the troops stood by for an hour. However, by 9.45 all were under way to act on the following special ideas, the times being post-dated one hour. On this and the two following days two Regular officers were good enough to assist in the umpiring.

Wednesday, August 8.

*Outpost Orders.—Left front, Newtown to Longham Bridge.*

TALBOT VILLAGE,

8 A.M., August 8, 1894.

V. Inf. Drill, 1893, para. 164.

1. Enemy at Wimborne (infantry), Canford, and Broadstone (light troops). Country, rough moorland.
2. Section 1 (Col. P.), P battalion, Newtown to waterworks. Responsible for left flank.  
Section 2 and reserve (Col. V.), S and B battalions and machine-gun. Waterworks (including road) to  $\frac{1}{4}$  mile north of Shoulder of Mutton (P.H.).  
Section 3, thence to Longham Bridge (imaginary).
3. Main body invading force will advance north at 1 P.M., so your line of defence (on high ground facing west) must be stoutly held.

<sup>1</sup> The long list of faults noticed at this and the subsequent days' conferences must not be considered to have been generally prevalent. The writer has recorded as far as possible every count in the indictment framed by each of the umpires; the daily improvement showed the criticism had good effect.



4. Report half-hourly to O.C. outposts at waterworks, who will report half-hourly to brigade office, Talbot Village: times of receipt of all reports to be registered.
  5. Patrol well to the front, on and off the roads.
  6. Right flank secured by 3rd section and north front troops.
  - 7-8. Water-carts with battalions; field hospital with reserve.
  9. Patrol from reserve (about one company) reconnoitre towards Broadstone, 11 A.M.
  10. Signalling officer will arrange to connect laterally, and with brigade office. Six cyclists per battalion assist as orderlies.
  11. Examining guards on all roads. Flags of truce to be sent to O.C. outposts.
  12. Number piquets from left of sections.
  13. Outpost headquarters at waterworks. In absence of Brigade-General, Col. V. to command.
  14. Password, "Waterloo."
- Section Commanders will occupy their positions independently by 10.30 A.M. Col. V. will issue orders to both battalions in his command. The Brigade-General will inspect the line commencing from the left at 11 A.M. Outposts will fall back on the camp at 1.30 P.M., without further orders.

By order,

G. H., *Brigade-Major.*

Wednesday, August 8.

The defenders (W battalion and brigade cyclists, less six from each of the other battalions) are assumed to arrive by rail at Broadstone Junction at 10.30 A.M., under Col. C., and are at 11 A.M. at the cross-roads,  $\frac{1}{2}$  mile east of Broadstone Junction.

(Orders.)

WIMBORNE,

9 A.M., August 8, 1894.

O.C. W battalion.

1. The enemy's outposts are reported to be (facing west) north and south of the waterworks.
2. Attack and harass this outpost line in several places, and by so doing prevent the main body of the invading force from advancing northwards. We learn that this movement northwards is intended to commence about 1.30 P.M.
3. These attacks are to be confined to the manœuvre area, and are not to be pushed within half a mile of the Newtown-Longham road before 12.30. Reconnaissance may commence at 11.
4. The enclosed letters will be delivered under flag of truce to the enemy's piquets at different places before noon.
5. The direct track to the waterworks is reported bad for cyclists.

By order,

L. M., *Brigade-Major,*  
*Defending Force.*

In Section I, which looked down into the Waterloo valley, the lines of observation and defence were well marked. In Section II, with broken ground in front, the lines were more difficult, but in the main the general scheme adopted appeared to be sound. It was over this section that at 1.15 the attacking force advanced, and was eventually stopped at the line of defence near the waterworks.

While the general line taken by the outposts was good, many defects in detail were pointed out, and it was evident that company officers and men required much more practice in this work.

Among the faults noted were:—

Formation of reserve faulty.

Too many sentry posts.

Sentries insufficiently coached.

Sentries badly linked, and sometimes badly posted.

In the piquets, organization too casual; numbering of piquets neglected; arms not piled; piquets not told off; no ranges measured from line of defence; piquet in one case exposed on the skyline; reliefs not properly carried out; patrolling fair.

On the other hand, the connection with the headquarter office by signallers and cyclists was efficient, and the resistance when attacked was successful, and piquets mutually supported one another.

The result pointed to the necessity of company officers receiving more practical instruction in outpost details.

This evening, in the lines of the W battalion, a cook's competition took place. The cooks of the competing companies paraded with a pail of water, six kettles, fuel, and tools. On the word "Go," the cooks of each company dug a trench, lit a fire, and distributing the water among six kettles, proceeded to boil them. All six kettles had to boil before the superintending officer reported to the timekeeper. Two companies completed in  $21\frac{1}{2}$  minutes, and a third in  $22\frac{1}{2}$ .

*Thursday, August 9.*—This was a busy day all round. At 10 A.M. the B battalion started for the manœuvre ground, to practise outposts regimentally in the morning, and to join in the field-day in the afternoon. The transport detachment of this battalion carted out kettles, stoves, and rations. Wood was cut on the ground, kitchens dug, and dinners (roast and boiled) served at 2 P.M.

The cyclists were employed on this day in connecting with those of the Western Counties Brigade encamped near Weymouth, a distance of  $33\frac{1}{2}$  miles.

The scheme formulated was as follows:—

#### v. MAP II.

1. Scheme: the lateral communication between invading forces landed at Weymouth and Bournemouth; the defenders have cut the telegraph in all directions: the headquarters of the respective cavalry divisions on the night of August 8 were at Cerne Abbas and Blandford.

2. The cyclists of the Western Counties Volunteer Brigade will establish connecting posts as under.

I. Lodmoor (brigade office).

II. Poxwell.

III. Milestone 10 miles west of Wareham.

Those of the Portsmouth Volunteer Brigade—

IV. Wool railway bridge.

V. Milestone three miles west of Wareham.

VI. Wareham station.

VII. Kings Bridge, near Marsh Green.

VIII. Upton cross roads.

IX. Newtown chapel.

X. Talbot Village (brigade office).

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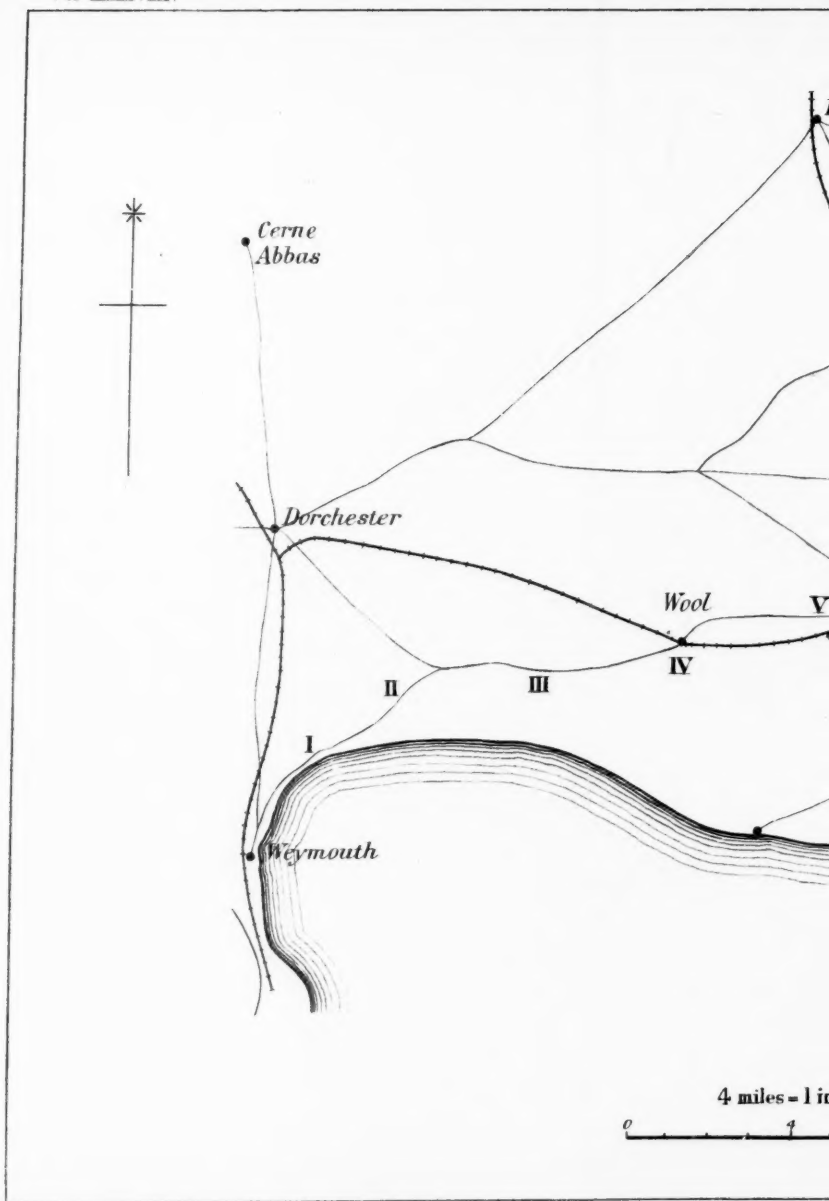
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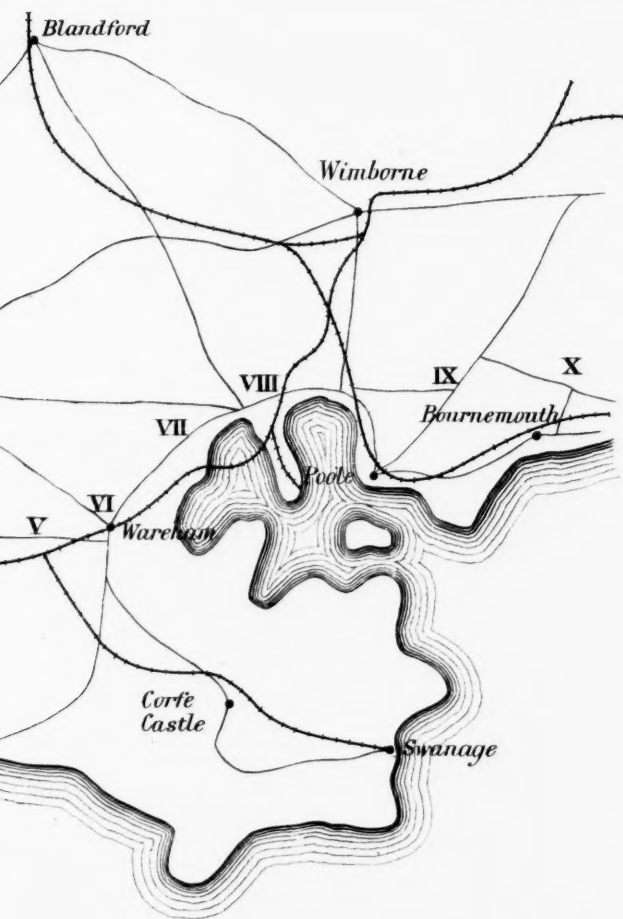
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# Map II.



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8 MILES



3. Each post will consist of 1 N.C.O. and from 4 to 7 cyclists, an officer being detailed to every 3 or 4 posts.

4. The posts will be stationed on the high road at a bridge or other easily distinguishable place, which must be passed, and will be marked by a bundle of hay or straw on a pole by day (and a lantern by night). Cyclists must not stray from their posts.

5. Each orderly will be given clear directions by the N.C.O. as to his road and the pace he is to travel; and on reaching the next post will receive a receipt for the dispatch carried, and return at once to his own post.

6. A register will be kept on the form on the back of this paper at each post, and will be frequently inspected by the officer.

7. The pace at which the message is to travel will be marked on the outside as follows:—

X. 6 miles an hour.

XX. 8 to 10 miles an hour.

XXX. As fast as possible.

8. The posts will all be occupied by 11.30 A.M. on Thursday, August 9, and, unless previous orders are received, will be evacuated at 3 P.M.

9. Cyclists will carry cooked rations.

10. The officer detailed for Wool railway bridge post (IV) will see that the time as indicated at Wool station is communicated to the posts east and west: watches will be set in accordance with this time.

## REGISTER.

Connecting post, No.

Stationed at

N.C.O. (name).

Cyclists (names).

(Rank)

(Regt.).

(Regt.).

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Date.	Detail of letters.	Arrived.			Sent.			Remarks.
		When.	Bearer.	From.	When.	Bearer.	To.	

Examined,

A.M.

A.M.

A.M.

P.M.

P.M.

P.M.

Cyclist officer,

V.B.



The arrival of the Portsmouth cyclists at their farthest point (21 miles) was announced by carrier pigeon. All the posts were punctually occupied, and several messages passed through each way. As will be seen from the table, the time varied from 2 hours 43 minutes to 3 hours 25 minutes.

Several of the messages sent from Bournemouth got hung up at about No. V post, as the sergeant in charge of No. X did not start sending until 12.30 P.M., thinking he had to wait until the official time came through.

Part of the road indicated between posts VIII and IX was also found to be unrideable, and a detour had to be made.

Experience shows that it is better to number each message thus: 1W, 2W, i.e., No. 1 from the west; 3E, No. 3 from the east. These numbers are easily entered in the registers.

The time of sending from the original station should be marked on the outside of the envelope. The envelopes should be stout linen, lined, as they get wet and dirty in the passage, and in wet weather would wear out.

When two brigades practise this exercise, the farthest post of each brigade should be ordered to communicate immediately with its neighbour of the next brigade, the cyclists at these frontier posts being slightly strengthened to ensure this overlapping.

In the morning the brigadier visited the P battalion at attack drill, and subsequently rode to No. IX post, sending back thence to hurry up the messages.

The chief of the staff of the southern district visited the camp on this day, and saw the afternoon operations.

No programme had been devised beforehand for this day, it being kept open in case the weather had necessitated the postponement of one of the former day's work.

The following scheme was therefore issued to commanding officers at 2.45 :—

*Defender.*—Orders to be opened by the O.C. S battalion on arrival at the waterworks.

From G.O.C. Wimborne.

Take up a position at or near the waterworks to hold the Newtown-Longham road, at all costs; the invaders are in force at Newtown. It is doubtful if reinforcements can reach you; they will come from the west if at all.

*Defender.*—To the O.C. B battalion (already on the manoeuvre ground).

From G.O.C. Wimborne.

Conceal your battalion on or near the track leading from the waterworks to Broadstone Junction. If the enemy advances from the south to attack the S battalion at the waterworks, make a vigorous counter-attack on his left flank.

*Invader.*—To the O.C. W battalion, in command of the P and W battalions d machine-gun. Orders to be opened at Newtown Chapel.

From G.O.C. Poole.

Clear the road to Longham Bridge.

The position at the waterworks, looking south, is an easy one to defend, as it commands a boggy valley which the attacking force must cross on descending from the higher ground beyond.

Message number.	From	Post I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	Pace.	Total time.	Remarks.
		Miles 4	4	3½	3½	3½	4	2½	6	2½	Total 33½			
1	Weymouth	11	11.32 11.35	11.45 12.3	12.25 12.25	12.38 12.38	12.50 12.50	1.4 1.9	1.19 1.22	1.53 1.55	2.25	x x	h. m. 3 25	The upper number at each post gives the time of arrival—the lower of departure.
2	Do.	11.15	11.46 11.47	11.50 12.15	12.39 12.39	12.47 12.47	1 1	1.14 1.15	1.27 1.32	2.10 2.12	2.33	x x	3 18	
3	Do.	11.30	11.55 11.57	12 12.21	12.47 12.47	12.57 12.57	1.10 1.10	1.25 1.27	1.38 1.41	2.14 2.16	2.33	x x	3 3	
1	Wool	By pigeon			11.30						12.20 1.7			The upper number is the time the bird was sighted—the lower the time message arrived in camp.
3	Do.	Do.	Do.		3.15						3.43 4.5			
4	Weymouth	1.40	2.20 2.22	2.34 2.35	2.52 2.52	3.2								
1	Bournemouth	3.18	3.9 3.12	2.52 2.53	2.25 2.25	2.15 2.15	1.54 1.54	1.26 1.30	1.14 1.15	12.43 12.45	12.30	x x x	2 48	
2	Do.	3.18	3.10 3.12	2.52 2.53	2.27 2.27	2.17 2.17	1.55 1.55	1.34 1.36	1.20 1.23	12.45 12.47	12.35	x x	2 43	
3	Do.			3.24 3.25	2.52 2.52	2.29 2.29	2.15 2.22	1.35 1.37	1.27 1.30	1.4 1.6	12.40	x x		

Message number.	From	Post I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	Pace.	Total time.	Remarks.
		Miles 4	4	3½	3½	3½	4	2½	6	2½	Total 33½			
4	Bournemouth				3.21	2.43 2.43	2.18 2.20	1.55 1.56	1.39 1.43	1.12 1.14	12.45	x x		
5	Do.					3.3	2.40 2.42	2.13 2.15	2.2 2.4	1.24 1.26	1	x x		
6	Do.					3.3	2.40 2.42	2.14 2.17	2.1 2.2	1.39 1.40	1.20	x x		
7	Do.					3	2.34 2.37	2.15 2.18	2.5 2.6	1.45 1.46	1.25	x x		
8	Do.						3	2.39 2.41	2.26 2.28	1.55 1.57	1.30	x x		
9	Do.							3.10	2.33 2.40	2.8 2.10	1.45	x x		
		Lod- moor	Pox- well.	MSIO W of Ware- ham.	Wool Rly. Bridge.	MS 3 W of Ware- ham.	Ware- ham Station.	Kings Bridge	Upton Cross Rds.	New- town Chapel	Talbot Village.			

The O.C. S battalion advanced one company beyond the boggy ground on to the farther hill, and with his other three companies took up a commanding position in front of the waterworks wholly to the west of the road.

The attacking force advanced northwards; the P battalion on the left, the W battalion in the centre and right.

At 4.45 the P battalion drove in the advanced company of the defenders: it had caused little delay, and had considerable difficulty in retreating across the boggy ground. The P battalion early drew the fire of the defenders at the waterworks, and was pressing down into the valley, when the B battalion sprang from the heather on its left and poured volleys into its flank. The P battalion hesitated and curled back to the road; the counter-stroke had rolled back this part of the attack.

The W battalion on the right meanwhile pressed on towards the cross roads. Two companies were drawn into the fight on the road, but the remaining six steadily crossed the boggy ground hardly touched by the enemy's fire, which was all directed on the west of the road.

Ammunition now failed the S battalion at the waterworks; and the P battalion, recovered from the shock of the counter-attack, was now holding its own facing west in the hollow road. The W battalion was pushing on steadily when the cease fire sounded (5.25).

At the conference the following points were dwelt on:—

The defensive position taken up by the S battalion should have been astride the road, not merely on one side of it; the advanced company was practically useless. Ammunition was wasted by this battalion by opening a heavy fire too soon.

The counter-attack was well concealed and vigorously conducted; its effect on the attacking force was local demoralization.

That this local demoralization did not become general was due to the fact that the invading commander, keeping his head, refused to be flurried by the check on his left, and held to his main objective. This success was not immediately appreciated by the men of the W battalion, few of whom fired a shot during the afternoon, but, as an exercise, it afforded valuable training to leader and to men—to the leader to hold to his objective, in spite of a local reverse, and to the men to work steadily, first through wooded and then through boggy country.

Various points of fire discipline were also noted.

*Friday, August 10.*—Friday morning was fully employed. At 10 A.M. the transport paraded for inspection by the brigadier.

After the salute and inspection in line, the wagons (15 in number) marched past by half companies and then ranked past. Subsequently one face of a laager was formed; in  $2\frac{3}{4}$  minutes wagons were laagered, horses unhooked, and fire opened; one horse broke away; column of route was re-formed in  $1\frac{3}{4}$  minutes. The transport then joined the B battalion to practise for the afternoon's work. By this time the cyclists were formed up for inspection, and, as they moved

off, the W battalion marched into the brigade field, and were watched at their work by the brigadier.

At this drill an attempt was made to practise officers and section leaders in assuming command of portions of the firing line when the companies get mixed, and of practising the men to obey officers and section leaders to whom they were not accustomed.

One company was for this purpose fully extended, and commenced the advance; then another company was piled on to it, and captains, subalterns, and sergeants redistributed the firing line among them as the advance continued; a third company was then brought up, and subsequently a fourth; the whole line finally charged and re-formed. The other half-battalion had practised the same "disorder" parade in the morning, with good results, and the way in which each half-battalion silently accommodated itself to the difficult circumstances on the first time of asking showed that the week's steady work was already having a marked effect.

In the meantime the progress of the scheme was continued as follows:—

On August 9 the invader seizes Poole Harbour and pushes northward towards Broadstone Junction. The defender at Wimborne is reinforced.

At 2.30 P.M. the troops left camp for the final manœuvre, based on the following special ideas, which were designed to give practice to the departments as well as the troops:—

#### INVADERS.

(Orders.)

O.C. B Battalion.

POOLE, 3 P.M., August 10, 1894.

Your battalion and machine-gun will act as escort to a convoy of wagons just landed here. March by Newtown and the waterworks to Talbot Village.

The enemy (infantry) is at Wimborne and Canford Magna; our cavalry has just seized Broadstone Junction.

By order,

J. K., A.Q.M.G.

N.B.—The brigade transport will represent this convoy, which may move at  $2\frac{1}{2}$  miles an hour; your convoy and escort will be at Newtown (A), south and west of the chapel (photo enclosed), at 3.45, at which hour it may advance.

#### DEFENDERS.

(Orders.)

CANFORD MAGNA,

3 P.M., August 10, 1894.

O.C. Portsmouth V.B. (W, S, and P Battalions).

The enemy is landing stores at Poole, and forwarding them to Talbot Village.

Watch your opportunity, and you may intercept one of his convoys.

By order,

P. Q. R., A.A.G.

N.B.—The point of your advanced guard, marching as from Canford, will be at the keeper's cottage (B) on Kingston Heath (photo enclosed) at 3.45 P.M., at which hour it may move.

The chances of this day required a rather nice calculation of distances. The road to be taken by the convoy involved its passing northwards to the waterworks, and thence turning east to the camp; the other and more favourable routes were assumed to be occupied by other trains. If the larger body of cyclists of the defenders could seize the important cross roads at the waterworks, the chances are that the convoy would have been headed, forced to form laager, and fight for dear life.

A brief narrative of the action will show the details of a dramatic little field day.

Leaving Newtown Chapel at 3.45, the cyclists of the B battalion raced ahead, split into groups at the cross roads, and scoured the various tracks to find the enemy; four men passed down the road through High Wood, which led towards the enemy; when clear of the wood they dismounted and left their machines, one moving to the left of the track, two to the right, and one advancing along it.

4 P.M. The defender's cyclists now appeared on the crest of the hill (c), and, though forty strong, were checked for some three minutes by the energetic action of these four men.

The stronger number then came on, and took prisoner the centre man, who was going back with the information, but the delay caused by these four men turned the evenly balanced fortunes of the day, and prevented the defenders from occupying the all-important cross roads in time.

A curious incident now occurred. The quick movement of opposing cyclists renders an actual collision on a road a very probable contingency; the manoeuvres of cyclists of opposing forces in peacetime are on this account most difficult to umpire; the troops in winding lanes are on one another like the flash of a rifle, and the greatest care is necessary to prevent an actual collision.

In this instance, at 4.5 P.M. the advanced guard of the convoy was nearing the cross roads when it heard the cyclists firing to its left front. It inclined to the left to join in the fight, and left at the head of the column the Maxim gun.

The gun detachment halted at the cross roads, sheltered under a bank in the south-east angle, and unlimbered ready for action, no enemy being in sight.

In the twinkling of an eye the W cyclists, having overcome their four men difficulty, debouched from the wood, rode up to the cross roads, and, before either side were aware of it, had dismounted in the same angle of the field as the machine-gun, actually surrounding it before they became aware of the value of their prize.

The convoy was seen coming on, the gun had to be dragged away, and this party of cyclists not actually barring the road was held to be insufficient to check the march of the escort.

The *mêlée* at the cross roads demanded free "killing" by the umpires, but the wagons pressed on, and by 4.10 passed the dangerous angle, and showed their tailboards to the waterworks.

The defender's raiding infantry was now pressing through High Wood, and the escort was soon involved in a rear guard action from

the waterworks to the camp—a running fight, in which they must have suffered heavily in spite of a well-ordered retirement. Later an officer, who understood the working of the captured Maxim, was found, and it was turned on to the retreating column, but at so long a range as to be ruled ineffective. The attack and retreat continued as far as the cultivated ground.

At the conference several points of fire discipline were again commented on; the delay caused by the bluffing action of the invader's cyclist patrol, and the failure of the defender's cyclists to hold the cross roads, were pointed out.

The troops now marched back to the brigade field, and for the first and last time marched past very steadily in presence of a large number of spectators. The cyclists, brigaded in rear of the infantry, made a fine show, it being calculated that 1,000*l.* worth of machines were on parade. The transport and bearer company brought up the rear. The troops returned in quarter column, and then marched to their regimental parades, a thunder shower preventing the advance in review order.

*Saturday, August 11.*—The next day saw the camp struck, and the various battalions entrained for the return journey.

The trains, though the rolling stock was actually in the station sidings, started late as follows:—

1st train .....	12 minutes.
2nd train.....	1 minute.
3rd train.....	33 minutes.
4th train.....	55 minutes.
5th train.....	65 minutes.

The reason of this delay was that the railway authorities, being unaccustomed to the carriage of troops, failed to make up beforehand the horse-boxes, baggage vans, and wagon trucks to suit the various trains and the platforms at which they were to be loaded. The troops were all punctually at the station and entrained quickly, in no way interfering with the ordinary traffic, but the want of organization in advance of the horse-boxes and trucks created a delay in starting which augurs ill for a similar operation in war-time unless controlled by the military staff.

The transport service, augmented by several extra teams, worked excellently on this day.

It remains to be stated that the general health of the camp was most excellent, only 24 cases, inclusive of accidents, being reported in the eight days.

This paper may be concluded with an extract from the final order issued on the breaking up of the camp.

"The Brigadier-General wishes to express his great satisfaction with the behaviour of the troops during the encampment. He was glad to see the interest taken by all ranks in the daily manœuvres, and the cheerful way in which the fatigues of each day were borne. There was no falling out on the march, and during the manœuvres he was glad to watch the daily improvement of officers and men, and considers the fire discipline of the brigade was fairly satisfactory; he was also pleased to note a marked improvement in the manner in which the guard duties were performed throughout the brigade."



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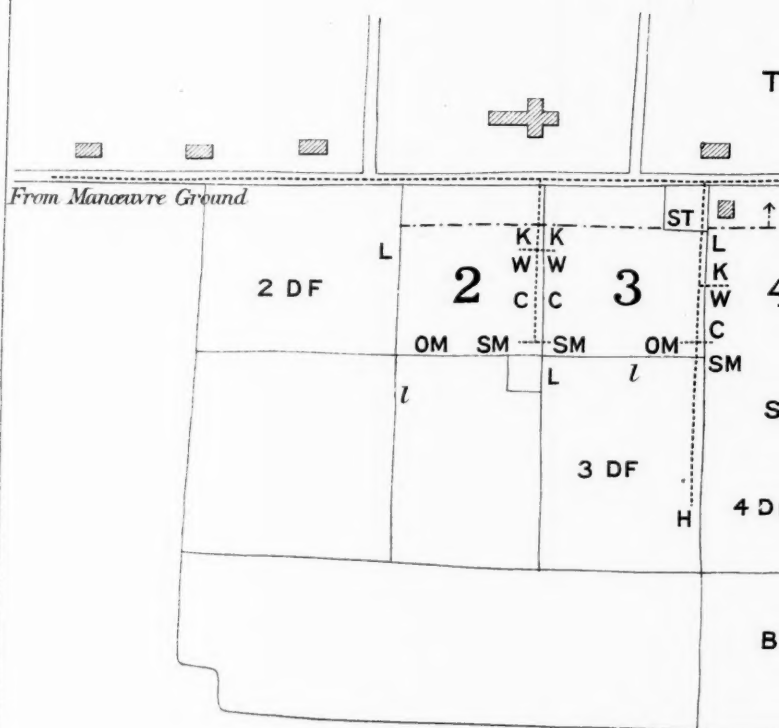
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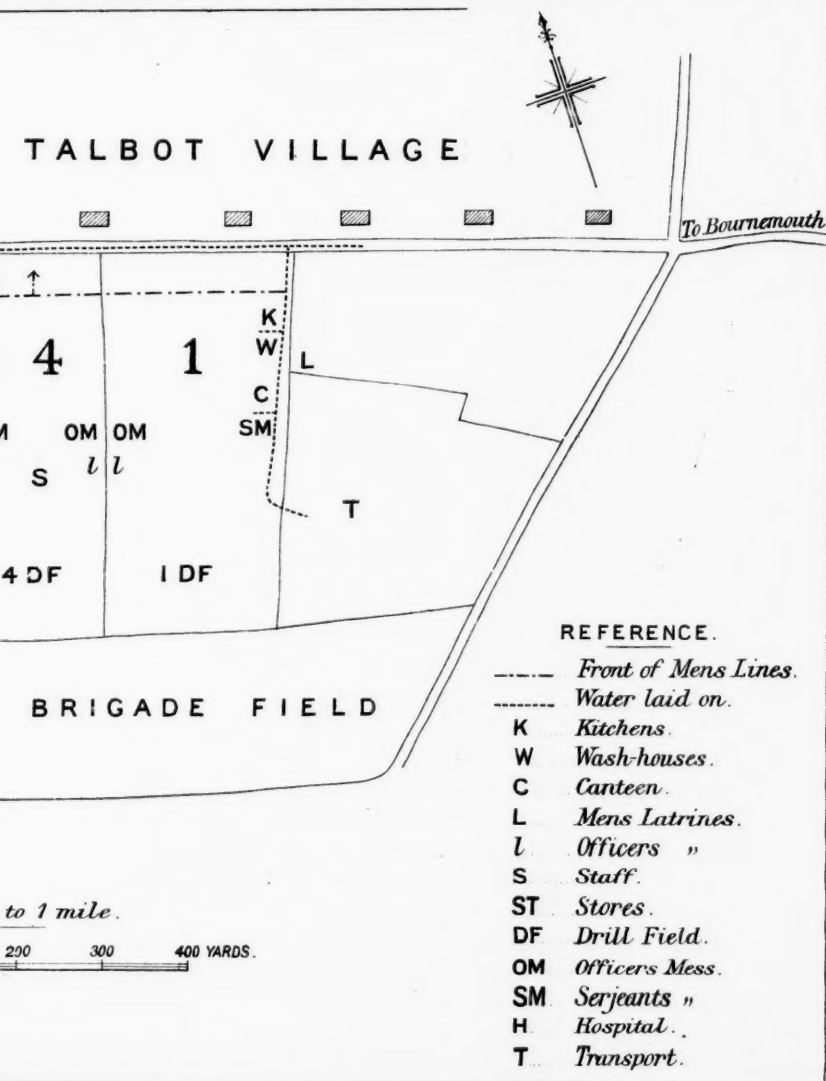
# P.V.I.B. PLAN OF CAMP NEAR F



Scale, 9 inches to 1

YARDS. 100 50 0 100 200

## Map III.

R BOURNEMOUTH, AUG. 4<sup>TH</sup>-11<sup>TH</sup> 1894.

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## NAVAL AND MILITARY NOTES.

### NAVAL.

**Home.**—The following are the principal appointments which have been made: Vice-Admiral R. Wells to be Commander-in-Chief at Sheerness *vice* Sir A. Heneage. Rear-Admirals—C. E. Buckle to be Senior Officer on the Coast of Ireland *vice* H. St. John; E. C. Drummond to be Commander-in-Chief in the East Indies *vice* W. Kennedy. Captains—G. Neville to command of Victoria Naval Defence Force *vice* R. White; C. G. Robinson to "Vulcan."

The new 2nd class cruiser "Charybdis" is now ready for commissioning, and has been passed into the A Division of the Chatham Reserve.

In pursuance of the policy of having every vessel of the First Reserve Squadron of a modern type, the new 1st class torpedo gunboats "Renard" and "Salamander" are to be commissioned as tenders to the "Colossus" and "Alexandra," at Holyhead and Portland respectively, in place of the old gunboats "Watchful" and "Foxhound." There will then be six of these new gunboats in commission round the coast, the four others being the "Leda," "Onyx," "Niger," and "Sheldrake."

The "Boadicea" has been paid off and placed in the B Division of the Reserve at Portsmouth.

The advantage of sending out new crews and bringing home the old ones in cruisers has been fully exemplified by the necessity of temporarily strengthening the squadron in China, the "Crescent," which was *en route* to Australia, having been intercepted by wire at Colombo, and ordered to join Sir E. Fremantle's flag in China instead of proceeding at once to her destination. We are glad to hear that the "Crescent" is still keeping up her reputation as a fast and trustworthy ship, as it is stated she averaged over 15 knots on the passage from Colombo to Hong Kong. She left Colombo on October 10, the P. and O. steamer "Surat" having 30 hours' start, but such good time did the cruiser make, that she steamed into Singapore more than two hours ahead of the mail-boat. It has been shown over and over again during the last few years that sea work improves the speed of these new cruisers, as it seems to take some little time for the engines to settle smoothly to their work.

A preliminary trial of the torpedo-boat destroyer "Ardent," built and engined by Messrs. J. L. Thornycroft and Co., of Chiswick, was made on 9th ult., at the mouth of the Thames.

The "Ardent" is the first of the three sister vessels which have been designed for the Royal Navy by this firm, and is 15 ft. longer than the "Daring" and "Decoy," also built at Chiswick. The extra length has been given in order to meet the demands of the Admiralty for greater accommodation. The following are the principal dimensions of the new vessel:—Length over all 200 ft., breadth 19 ft., depth 14 ft. The engines are similar to those fitted in the "Daring" and "Decoy," being of three-stage compound type, with two low-pressure cylinders. The diameter of the cylinders are:—High pressure 19 in., intermediate 27 in., and the two low pressure each 27 in. The vessel is twin screw. The boilers are of the Thornycroft water-tube type, and somewhat larger than those of the "Daring" and "Decoy," but it will be remembered that in the "Daring's" boilers there were two close walls of tubes forming the exteriors of the furnace space or combustion chamber; the products of combustion passing to a space, or uptake, in the centre

of the boiler between the two furnaces. In the "Ardent's" boilers the same outer rows of adjacent tubes are retained, but bent inwards towards the furnace space is a row of other tubes, which, however, are not touching each other, so that the heated gases can pass between them to the walls of tubes at the back. In this way an addition has been made to the heating surface, and, though the back tubes are somewhat masked, the arrangement has resulted in more steam being generated, with a corresponding increase in power developed by the engines. A notable point in this vessel is the automatic boiler-feed control, recently introduced by Messrs. Thornycroft. Talc is used in place of glass for the boiler water gauges, the increased pressures now used necessitating a departure from the old gauge glass.

The vessel left Greenhithe at 10.15 A.M., and ran down to the measured mile on the Maplin Sands. After a series of progressive runs below full power a full-speed trial was made, the mean of two runs with and against tide being 29.182 knots. This is the highest speed yet attained as a mean of runs with and against tide, the "Daring," it will be remembered, having made a single run at 28.268 knots. The quickest run with the "Ardent" was 30.151 knots, but this was with the tide, whilst the "Daring's" run was against a slack tide on the same course. The power developed was about 5,000 horse power, the boiler pressure being 210 lbs. to the square inch, and the mean revolutions 407 per minute. The absence of vibration, which has been so happy a characteristic of the later vessels of this class, was also noticeable in the "Ardent," whilst another improvement was the very small amount of flame to be seen at the top of the funnels, even when running at the highest speeds.

The following table gives the results obtained:—

*With Natural Draught.*

No. of runs.	Steam.	Receiver pressure.		Vacuum.	Revolutions.		Time.	Speed.	Mean speed.
		M. V.	L. P.		Port.	Star-board.			
	lbs.	lbs.	lbs.	in.			m. s.	knots.	knots.
1	110	42	10	27	280	277	2 48	21.42	19.27
2	85	40	9	27	269	268	3 22	17.32	
3	90	39	8	27	272	269	2 51	21.05	

*With  $\frac{1}{2}$  in. Air Pressure.*

1	160	80	24	26	355	351	2 11	27 3	26.78
2	167	84	27	26	370	363	2 19	25 7	
3	160	78	26	25	368	366	2 7	23 2	

*With 2 in. Air Pressure.*

1	200	100	43	24	411	402	2 7	28 2	29.18
2	195	95	41	24	407	405	1 5 $\frac{1}{2}$	30 1	

The "Rocket," one of three torpedo-boat destroyers building for the Admiralty by Messrs. J. and G. Thomson at Clydebank, has also had a preliminary trial at Skelmorlie, on the Clyde, attaining a mean speed of 28.3 knots.

The "Hussar," torpedo gunboat, at Devonport, has also completed the official trial of her machinery with forced draught. For the first hour everything worked splendidly, there being no difficulty in exceeding the guaranteed horsepower of 3,500. During the second hour, however, the steam went down, and the officials in charge were unable for some time to realize the required power. Messrs. Marshall and Beaton, who represented the machinery contractors (Hawthorn, Leslie, and Company), then succeeded in working the engines up, and obtained permission to run the vessel for four hours instead of stopping at the end

of three hours, as is usual for this class of vessel. The mean results of the last three hours showed an indicated horse-power of 25 in excess of that required, and consequently the trial was reported as satisfactory, although the speed was only 18·5 knots. On completing her propelling machinery trial, the "Hussar" returned to the Sound, where she was subjected to trials of a new type of capstan gear fitted by Messrs. Harfield and Co. During the natural and forced draught trials the vibration of the vessel was excessive, and an examination will be made to ascertain whether this is due to faulty construction or to the uneven distribution of the weights put on board to place the vessel at her mean load draught.

The new 2nd class cruiser "Flora" has undergone a fresh trial under forced draught, and this time with most satisfactory results. She left her moorings at the Wear Point about 11 A.M., and steamed out of the harbour. After leaving the harbour the ship was steered a south-easterly course. The trial of the engines did not begin until the ship had run for about an hour. Everything went without a single hitch throughout the test. The mean results of the four hours' steaming were as follows:—

Mean steam in boilers per square inch. ....	150 lbs.
Air pressure in stokeholds. ....	1·2 in.
	Starboard. Port.
Vacuum in condensers. ....	26·3 26·3
Revolutions per minute. ....	142·2 141·9
Indicated horse-power. ....	4,626 4,671

Gross total indicated horse-power. .... 9,297

The maximum horse-power attained during the trial was 9,511. The sea was "lumpy," and therefore unfavourable for the development of great speed, but the mean of the four hours' trial was, nevertheless, 20·1 knots, which, under the circumstances, is very satisfactory. The Naval Construction and Armament Company, Barrow-in-Furness, who manufactured the engines, were represented by Messrs. Blechynden and J. E. Hamilton, the latter of whom superintended the fitting of the engines on board the ship. The firm deserve credit for the excellent results attained, which establish beyond doubt the justice of their complaint that the previous trial with forced draught was conducted under circumstances which did not permit them to take the precautions necessary to ensure a satisfactory result.

A series of evaporative trials have been carried out lately on board the new 2nd class cruiser "Hermione," and the following are some of the results obtained:—

With coal supply limited to 12 lbs. per square foot of grate surface the indicated horse-power was 641; 2·58 lbs. of coal was consumed for each indicated horse-power, and 8·44 lbs. of water was evaporated for each pound of coal. With the coal supply limited to 20 lbs. the results were:—Indicated horse-power, 1,066; 2·59 lbs. of coal consumed per indicated horse-power, and 8·09 lbs. of water evaporated per pound of coal. With the coal supply limited to 28 lbs. the indicated horse-power recorded was 1,505; 2·56 lbs. of coal consumed per indicated horse-power, and 7·86 lbs. of water evaporated per lb. of coal.

The Admiralty have published the following table showing the ships at present forming the coastguard squadron, together with the port guardship at Pembroke and Queenstown, and the extent to which they will be manned by Royal Naval Reserve men and coastguard men in the event of a mobilization of the fleet being ordered:—

Name of ship.	Stationed at—	Comple- ment as coastguard ship.	Full seagoing comple- ment.	To be made up to full complement by	
				Royal Naval Reserve men.	Coast- guard men.
"Alexandra"...	Portland.....	166	327	82	79
"Australia"....	Southampton..	103	197	50	44
"Galatea".....	Queensferry ..	103	197	50	44
"Aurora".....	Bantry .....	103	197	50	44
"Edinburgh"...	Hull .....	98	188	47	43
"Colossus".....	Holyhead.....	98	188	47	43
"Benbow".....	Greenock.....	100	196	49	47
"Mersey".....	Harwich.....	75	144	36	33
"Melampus"....	Kingstown....	53	90	23	14
"Warspite"....	Queenstown...	111	213	54	48
"Rupert".....	Pembroke.....	67	118	30	21
Totals....				518	460

The above numbers refer to seamen ratings only.

Some time since, when dropping gear was introduced for the discharge of Whitehead torpedoes from boats, it was found necessary to have a special kind of torpedo considerably shorter than those in general use. A large number of 18-in. torpedoes (17 ft. in length) were sent to the factories and reduced in length by about 4 ft. They were at first found to work admirably with the dropping gear, but experience has shown that their stability was seriously affected by the conversion, and as their reduced length necessitated the explosive charge being reduced from 200 to 100 lbs., it was decided that a new type of torpedo should be introduced. After a series of experiments the required type has been perfected, and although its diameter is but 14 in., it has proved itself to have all the advantages of the short 18-in. type, with greater stability and a larger explosive charge, and will be admirably adapted for boat work and the armament of small cruisers. No more of the short 18-in. are to be manufactured, and the 1st class battle-ships now building, and the cruisers "Powerful" and "Terrible," which it was intended should carry them for use with boats' dropping gear, will now be supplied with the new 14-in. type. The Admiralty have decided to reduce the number of types as much as possible, and with this in view have decided to have for future manufacture only one type of 18-in. long, both for Woolwich and Whitehead manufacture, and one type of 14-in., which will be known as Mark IX. R.G.F.

It is stated that the Admiralty have decided to lay down at Devonport Dockyard next year two cruisers of a distinctly new type. Instead of being known, as hitherto, as 1st, 2nd, or 3rd class cruisers, the new vessels will be styled "fleet" cruisers. It is intended that the vessels shall be so constructed and engined as to be specially adapted for scouting and despatch service, and instead of being commissioned for station service they will be kept in a state of efficiency in the Fleet Reserve until required for duty with the Mediterranean, Channel, or mobilized squadrons. They are being designed by Mr. W. H. White, Director of Naval Construction at the Admiralty. The plans, which are now in their infancy, are not likely to be completed until January or February next, but in order that preliminary arrangements for the vessels' construction might be taken in hand, Mr. White has intimated his intention of basing his designs on the following approximate dimensions:—Length,



270 ft.; breadth, 40 ft.; mean load draught, 16 ft. The engines will probably be put out for building by contract on account of the large amount of work now in hand at Keyham. The type of boiler has not yet been decided on, it now being a question under consideration whether the water tube type shall be adopted or not for vessels of this class. As a high rate of speed (not less than 22 knots) is required, the Admiralty are anxious to secure engines capable of developing with forced draught an indicated horse-power of 10,000. Special attention will be given to coal capacity, and arrangements will be made for utilizing every available wing space for this purpose, so that when required nearly 500 tons of coal can be stowed on board. The armament will consist of Q.F. guns, the largest being the 4.7-in. Q.F. and Maxim machine guns. Whitehead torpedoes will be carried for discharge from a fixed stem tube, and from a stern tube, as well as from two broadside revolving tubes. The cost of each vessel will amount to about 200,000*l*.

Some interesting experiments took place about two months ago with a new signalling apparatus, the joint invention of Captain Prince Louis of Battenberg and Captain Percy Scott. The apparatus was fitted on board the gunboat "Insolent" at Portsmouth, and consists of a diamond-shaped collapsible drum, which is 10 ft. in diameter when exposed, and lies flat to the mast when shut. It is worked by means of levers, which can be worked by the signalman on the main-deck, in the conning-tower, or at any point under the protection of armour, where he can be in electric or voice pipe communication with the captain; the machine, which is at the masthead, consisting of laths made of bamboo and canvas. At the top and bottom of the apparatus are collars which are moved by the levers in such a form as to cause the drum to convey messages in the Morse code. Hitherto the difficulty has been to construct an apparatus that shall be opaque and sufficiently large to be readily discernible, and that shall, at the same time, be of sufficient strength to resist the wind. In this case, though the machine appears to be opaque, there are means for enabling the wind to pass through, thus combining lightness of construction with opacity in appearance. The advantages of the new system, so far as concerns clearness, certainty, and rapidity in the transmission of orders, were amply proved by the trials on board the "Insolent;" and although it is yet too soon to say that the collapsible cone will become a Service fitting, it cannot be questioned that it solves a problem which has long puzzled inventors. The test to which the new apparatus was put was simple in the extreme. Flag-signalling cannot be taken in with any certainty at a distance of 6 miles; it was asked of the new apparatus that it should send a message over a somewhat longer distance. During the trial, signals made with the cone on board the "Insolent" were read off at the semaphore station in the dockyard when the gunboat was lying over on the Isle of Wight shore, or not less than 12 miles away. There cannot, therefore, be any question as to its success for distant signalling. Naturally a fine day was chosen for the experiment, but it was perfectly clear to those who had seen a much rougher instrument tried on the "Royal Sovereign" that the results would have been equally good had it been blowing a gale of wind.

There are several reasons why the benefits which this new apparatus affords will be quickly appreciated by the Service. It is now universally recognised that flags cannot be used in battle; moreover, when steamers are end-on and approaching at high speed, flags are indistinguishable; but by the new method a cruiser as she comes up to the fleet will be able to impart any information she may have gained, and this without any alteration of course. These are the essentials of a good signal apparatus:—1, visibility all round; 2, above the smoke region; 3, capable of being taken in at distances of from 6 to 8 miles; 4, not dependent on colour; 5, operator should be under cover of armour; 6, operator should be in close communication with captain of ship; 7, apparatus should not easily be shot away. Hitherto all the forms suggested or tried have come to grief, owing to their meeting with disaster when opened in a strong breeze. This objection cannot be urged against the form tried in the "Royal Sovereign" and the "Insolent," for although it looks opaque, it allows more air to pass through it when open than when closed. As it offers no target, and the operator may be behind as many inches of armour as the ship can carry,

it should fulfil the long-felt requirement of a naval system of signalling for war purposes, and as it uses the Morse code, which is the code used by everyone in the world who wants to make a signal, whether it is by waving a flag, flashing a lamp, or the sun, or working the telegraph needle or sounder, it also provides a numerical system of signalling between army, navy, coastguard, lighthouses, and the merchant navy, which alone is a great advantage.

Want of space has prevented our noticing an article which appeared some three months ago in the "Times," on the "Bow-fire of Modern Ships." The writer, by means of a carefully selected list of English and foreign ships, sought to prove the great inferiority of our vessels in this respect, when compared with those of other navies, and on the face of it he would seem to have made out a strong case. Figures, it is said, can be made to prove anything, according to the will of the manipulator, and the same statement holds good when comparisons are made between ships, if, as has been done in this article, the writer only selects vessels which bear out his argument, and ignores other and newer types.

We do not see, for instance, why the "Royal Sovereign," which has been completed and in commission for over two years and a half, should be compared with the "Charlemagne," a vessel barely commenced and not likely to be ready for sea for another three years, if then; or with the "Jauréguiberry," another ship of a new type, only launched last year; or the three United States battle-ships of the "Oregon" class, none of which are nearly ready for sea, and all of which were designed after the plan of the "Royal Sovereign" and her sisters were known to all the world, and the ships themselves well advanced? Why, if the "Charlemagne" and other new foreign ships in various stages of building are quoted against our vessels, are the "Magnificent," and her eight sisters, in all of which special attention, we believe, has been paid to securing an effective bow-fire, not to be taken into account?

Again, we fail to see what object there can possibly be in comparing the "Impérieuse," laid down in 1881, with the French armoured cruiser "Dupuy-de-Lôme," or the United States belted cruiser "New York," both new vessels of the most modern design, and in ignoring our nine 1st class cruisers of the "Edgar" type, the "Blake" and "Blenheim," "Powerful" and "Terrible," all of which have a bow-fire of one 9.2-in. gun, and four 6-in. Q.F. guns, while the "Impérieuse" herself can use three 9.2-in. guns, and two 6-in. Q.F. guns for the same purpose.

We have in these "Notes" before now drawn attention to the superiority of bow-fire possessed by the new French 2nd class cruisers over our own corresponding cruisers of the "Latona" class, but it must be remembered again that this excessive development of end-on fire is only found in the latest type of French cruisers, all designed after the "Latona" and most of her sisters were afloat, and that in the nine vessels of the "Astræa" type, the Admiralty have done their best to remedy the defect by sponsoring out the two fore and two after 4.7-in. guns, so that they can now bring to bear for end-on fire one 6-in. Q.F. and two 4.7-in. Q.F. guns, either ahead or astern, while the "Talbot" and her eight sisters will have a bow-fire of three 6-in. Q.F. guns; yet these vessels, and the improvement made in the "Astræa" class, have been completely ignored by the writer of the article. It must be admitted, however, that the "Chasseloup-Laubat" and her sisters, in addition to the four 16-cm. (6.3-in.) guns, which can be used for bow or stern fire, can also bring to bear two 10-cm. (3.9-in.) guns, but an examination of the plans of these ships shows it to be extremely doubtful if the two smaller guns could be used for end-on fire, while the larger guns before and abaft them were being fired.

There is no question whatever that the "Times" article is decidedly misleading, and people unacquainted with the facts would certainly run away with the idea that no steps had been taken by the Admiralty to remedy a weakness which nobody now denies exists in the earlier types of our new ships, whereas the opposite is the case, and we believe that our gunnery experts are quite satisfied with the amount of bow-fire provided in the vessels now under construction. Into the

question of the number of rounds which can be fired in a given time by different ships, either ahead or astern, we shall not attempt to enter, because it is a question which cannot be settled off-hand by a rough-and-ready calculation based on the rapidity of fire which can be maintained from a gun on the practice-ground under the most favourable conditions, or by the fact that a ship mounts a certain number of guns which individually can be brought to bear on those points. Other factors, which will tend to affect the result, have also to be taken into consideration, as we shall show further on, but we may be permitted to point out here, what we believe to be an undisputed fact, viz., that, as far as heavy guns are concerned, while three minutes or a trifle under may be taken as the average time between two rounds in our Service, four minutes or longer is the average time required by French gunners from similar guns; when the "Dupuy-de-Lôme's" guns were tried last year, one round per minute was fired from her 19-cm. (7·6-in.) guns, and three rounds per minute from her 16-cm. (6·3-in.) Q.F. guns, which the official report announced as very satisfactory. If we are not very much mistaken, at prize-firing four and five, and sometimes even as many as six, rounds have been fired per minute from our 6-in. Q.F. guns, and a large percentage of hits scored. The writer in the "Times" has taken three minutes as the unit of time on which he bases his calculations, and has assumed an identical rate of fire, and that he has been obliged to assume this shows how unreliable such calculations must in all probability prove. In order to show how we really stand in the matter of guns, both for bow and broadside fire, we subpend a table of comparison between the latest types of French ships and our own, and as a tonnage comparison is impossible, we shall take the English and French battle-ships completed during the last two years and set them off against each other, and then compare those under construction.

"Royal Sovereign," 14,500 tons, and seven sisters; launched in 1890; completed in 1892—1894.

*Bow Fire.**Broadside.*

No. of guns.	Size.	Weight of projectile.		No. of guns.	Size.	Weight of projectile.	
Two	67-ton	1,250 lbs.	2,500 lbs.	Four	67-ton	1,250 lbs.	5,000 lbs.
Two	6-in. Q.F.	100 "	200 "	Five	6-in. Q.F.	100 "	500 "
Total weight of metal thrown = 2,700 lbs.				Total weight of metal thrown = 5,500 lbs.			

"Magenta" and two sisters, 11,000 tons; completed 1892—1894.

Three	34-cm.	881 lbs.	2,643 lbs.	Three	34-cm.	881 lbs.	2,643 lbs.
One	14-cm. Q.F.	70 "	70 "	Eight	14-cm. Q.F.	70 "	560 "
Total weight of metal thrown = 2,713 lbs.				Total weight of metal thrown = 3,203 lbs.			

"Magnificent" and eight sisters, 14,900 tons; building.

Two	50-ton	850 lbs.	1,700 lbs.	Four	50-ton	850 lbs.	3,400 lbs.
Four	6-in. Q.F.	100 "	400 "	Six	6-in. Q.F.	100 "	600 "
Four	12-pr. "	12·5 "	50 "	Six	12-pr. "	12·5 "	75 "
Total weight of metal thrown = 2,150 lbs.				Total weight of metal thrown = 4,075 lbs.			

"Jauréguiberry" and four sisters, about 12,000 tons; in different stages of completion.

*Bow Fire.**Broadside.*

No. of guns.	Size.	Weight of projectile.		No. of guns.	Size.	Weight of projectile.	
One	30-cm.	626 lbs.	626 lbs.	Two	30-cm.	626 lbs.	1,252 lbs.
Two	27-cm.	476 "	952 "	One	27-cm.	476 "	476 "
Four	14-cm. Q.F.	70 "	280 "	Four	14-cm. Q.F.	70 "	280 "
Total weight of metal thrown = 1,858 lbs.				Total weight of metal thrown = 2,008 lbs.			

"Charlemagne" and "Saint Louis," 11,000 tons; commenced, but progressing very slowly.

Two	30-cm.	626 lbs.	1,252 lbs.	Four	30-cm.	626 lbs.	2,504 lbs.
Six	14-cm. Q.F.	70 "	420 "	Five	14-cm. Q.F.	70 "	350 "
Two	10-cm. "	28.5 "	57 "	Three	10-cm. "	28.5 "	85 "
Total weight of metal thrown = 1,729 lbs.				Total weight of metal thrown = 2,939 lbs.			

"Brennus," 11,000 tons; nearly completed.

Two	34-cm.	881 lbs.	1,762 lbs.	Three	34-cm.	881 lbs.	2,643 lbs.
Four	16-cm. Q.F.	110 "	440 "	Five	16-cm. Q.F.	110 "	550 "
Total weight of metal thrown = 2,202 lbs.				Total weight of metal thrown = 3,193 lbs.			

*1st Class Cruisers.*

"Dupuy-de-Lôme," 6,300 tons; completing.

Two	19-cm.	165 lbs.	330 lbs.	One	19-cm.	165 lbs.	165 lbs.
Three	16-in. Q.F.	110 "	330 "	Four	16-in. Q.F.	110 "	440 "
Total weight of metal thrown = 660 lbs.				Total weight of metal thrown = 605 lbs.			

"Charner" and three sisters, 4,745 tons; completing.

One	19-cm.	165 lbs.	165 lbs.	Two	19-cm.	165 lbs.	330 lbs.
Two	14-cm.	70.5 "	141 "	Three	14-cm. Q.F.	70.5 "	211.5 "
Total weight of metal thrown = 306 lbs.				Total weight of metal thrown = 541.5 lbs.			

*1st Class Cruisers—continued.*

"Edgar" and eight sisters, 7,350 tons; completed 1892—1894.

*Bow Fire.**Broadside.*

No. of guns.	Size.	Weight of projectile.		No. of guns.	Size.	Weight of projectile.	
One	9·2-in.	380 lbs.	380 lbs.	Two	9·2-in.	380 lbs.	760 lbs.
Four	6-in. Q.F.	100 "	400 "	Five	6-in. Q.F.	100 "	500 "
Total weight of metal thrown = 780 lbs.				Total weight of metal thrown = 1,260 lbs.			

*2nd Class Cruisers.*

"Chasseloup-Laubat" and nine sisters; completing and building.

Three	16-cm. Q.F.	110 lbs.	330 lbs.	Four	16-cm. Q.F.	110 lbs.	440 lbs.
Two	10-cm. "	28 "	56 "	Two	10-cm. "	28 "	56 "
Total weight of metal thrown = 386 lbs.				Total weight of metal thrown = 496 lbs.			

"Talbot" and eight sisters, 5,000 tons; building.

Three	6-in. Q.F.	100 lbs.	300 lbs.	Three	6-in. Q.F.	100 lbs.	300 lbs.
Two	12-pr. "	12·5 "	25 "	Three	4·7-in. "	45 "	135 "
				Four	12-pr. "	12·5 "	50 "
Total weight of metal thrown = 325 lbs.				Total weight of metal thrown = 485 lbs.			

The two 19-cm. guns of the "Dupuy-de-Lôme" are mounted one on each beam, so any falling off of her head will throw one or other immediately out of action; the new French 2nd class cruisers vary in tonnage from 3,700 to 4,000 tons, and their armament also varies somewhat, but the "Chasseloup-Laubat" may be taken as a good sample of her class, and we may point out again that, while in all probability in action it will be found impracticable to work the 10-cm. gun simultaneously with the firing ahead of the 16-cm. guns, in the "Talbot" class none of the guns firing ahead will interfere with each other.

It will thus be seen that, whereas in bow fire our new ships are nearly on a par with the French ships, in weight of broadside fire, with the exception of the 2nd class cruisers, they have a great superiority. It must also be pointed out that the "Magenta" class, like our own "Admirals," have absolutely no protection for their battery of 14-cm. guns, while four of the "Royal Sovereign's" and her sister-ships' 6-in. Q.F. guns are in 6-in. armoured casemates, and that, moreover, although a swerve of a quarter of a point will suffice to throw one of the two 34-cm. guns mounted on the beam out of fire in the French ships, the barbette guns in our vessels can be kept bearing on the object, no matter how much the ship's head may fall off one way or the other. The two 27-cm. guns mounted on the beam in the "Jauréguiberry" and other vessels of her class similarly can only both be

used for end-on fire if the ship's head is pointed dead on the object, and while their 14-cm. Q.F. guns are mounted in pairs in small turrets protected only with armour 3.9 in. thick, the four 6-in. Q.F. guns, which the "Magnificent" and her class can bring to bear for end-on fire, are mounted independently in 6-in. armoured casemates. In the "Charlemagne" and her two sisters the heavy guns are mounted in pairs in turrets, one forward and one aft, but of the six 14-cm. Q.F. guns which can be brought to bear for end-on fire, four only are protected by armour 3 in. thick, while the other two with the 10-cm. Q.F. guns are on the superstructure and totally unprotected. Mounted, as eight of the 14-cm. guns are, in a recessed battery to allow them to fire ahead or astern along the superstructure, it will be seen here again that they can only all be used if the ship is directly end-on to the object fired at, an arrangement which compares very disadvantageously with the method adopted for the bow fire of the 6-in. guns in our new ships. It will thus be seen, we think, that our latest vessels will bear comparison in the arrangement of their guns even with the newest types of their foreign rivals.

It only remains to point out that, although the three Russian battle-ships of the "Sinope" type have a very heavy bow fire—viz., four 12-in. guns throwing projectiles of 731 lbs., and four 6-in. guns with projectiles 119 lbs., making the total weight of metal thrown 3,400 lbs.—yet this excessive bow fire has not been repeated in the latest ships. The "Tri Sviatitelia," for instance, launched last year, has a bow fire of only two 30-cm. guns (12-in.), and two 12-cm. Q.F. guns (projectile 46.6 lbs.), which gives a weight of metal of only 1,554 lbs., while on the broadside she brings to bear four 30-cm., four 15-cm. (88 lbs. projectile), and two 12-cm. Q.F. guns, making a total weight of metal thrown 3,368 lbs.

**Austria-Hungary.**—The 1st class belted cruiser "Kaiserin und Königin Maria Theresia," which was launched in April, 1893, at the *Etabilimento Technico*, Trieste, and of which at the time we gave some details, is now ready for her trials. She is an improved type of the "Kaiser Franz Josef" and "Kaiserin Elizabeth" class, being 1,000 tons larger, and her engines being intended to develop 1,000 I.H.P. more than the earlier vessels, and has, moreover, a complete steel water-line belt, while her predecessors are provided simply with the ordinary protective deck. Her dimensions are as follows:—Length, 347 ft. 9 in.; beam, 52 ft.; mean draught, 19 ft. 6 in.; displacement, 5,270 tons. Her engines are to develop 7,000 I.H.P. under natural draught, and 10,000 I.H.P. under forced, giving an estimated speed of 17 and 19 knots respectively. Protection is afforded by a 4-in. steel belt, which is curved and continued inboard to form the protective deck, where it tapers to 2.3 in.; above this deck a coffer dam, filled with cellulose, runs right round the ship. There are two barbettes and a central citadel protected by 4-in. armour, the ends of the citadel being also closed in by 4-in. athwart-ship bulkheads rising from the armoured deck. The armament consists of two 24-cm. (9.4 in.) Krupp 35-calibre guns, mounted one in each barbette forward and aft (these guns will have a firing arc of 240°, and are to be worked by electricity); eight 15-cm. (5.8 in.) Krupp guns, of which four are sponsoned out at either end of citadel, and the other four mounted on the deck above, protected by 3.9-in. shields, and so placed that they can be trained either ahead or astern or on each broadside; two 7-pr. Uchatius guns for the boats; 18 47-mm. (3-pr.) Q.F. guns, two machine-guns, and four torpedo-tubes. The ship will be lighted by electricity, and will carry 740 tons of coal, allowing a steaming radius at 10 knots of 4,500 miles.

The Naval Budget for 1895, which amounts in all to 12,981,260 florins, shows an increase over last year of 503,580 florins; allowance is made for the building of six sea-going torpedo-boats, for the continuance of the work on the coast-defence battle-ships "B" and "C," and for the completion of the belted cruiser "Kaiserin und Königin Maria Theresia." A vote was taken this year for the formation of a new class of petty-officer, to whom in the future will be entrusted the general supervision of the pumps, main drains, and other parts of the ship difficult of access, as well as the pipes and fire-mains for the supply of water in the event of fire; the personnel of this new class will be chosen from among the petty-officers of the

engine-room and mechanical staff, and a further sum will be expended next year in completing the new organization. ("Die Reichswehr.")

**Brazil.**—The Government has arranged with the Société des Forges et Chantiers de la Méditerranée at La Seyne, near Toulon, to build for it two small coast-defence battle-ships 267 ft. 6 in. long, 46 ft. 11 in. broad, and displacing, at a draught of 13 ft. 2 in., 3,162 tons. The designs are by M. Lagane, director of the yard at La Seyne. With natural draught the engines will develop 2,650 horse power, and give a speed of 13 knots; with forced draught, they will develop 3,400 horse power, and give a speed of 14 knots. Each will have two turrets, and its armament will consist of four 9.4-in. breech-loading, four 4.7-in. quick-firing, two 5.9-in. rifled howitzers or long mortars, two 3-in. (12-pr.) quick-firing, four 2.24-in. (6-pr.) quick-firing, two 1.45-in. (1-pr.) quick-firing, and two 1-in. machine-guns, with torpedo ejectors. There will be a thick steel belt, a steel protective deck, and heavy armour on the turrets. (The "Times.")

**Denmark.**—The Naval Estimates for 1895-96 amount in all to 7,735,415 kroner. In the ordinary charges 1,200,000 kroner are assigned for making progress with: (1) the new double turret coast-defence armour-clad "Skjold" (730,000 kroner); (2) the building of a 1st class torpedo-boat (370,000 kroner); and (3) the laying down of a new armour-clad (100,000 kroner). The "Esbern Snare" torpedo-school ship and the cruiser corvette "Valkyrien" are to be repaired. Money has been taken for the constitution in the spring of a manœuvre squadron, which will be composed of the following vessels:—

Battle-ship—"Odin" (flag-ship).

Coast-defence ship—"Gorm."

Gunboats—"Moen" and "Oeresund."

Torpilleurs-de-haute-mer—"Delfinen" and "Sværdfisken."

Fourteen 2nd class boats and a mining vessel.

The "Odin" is a central-battery ship of 3,090 tons, protected with an 8-in. belt and 8-in. armour over the battery, with 5-in. armoured bulkheads; her armament consists of four 10-in. guns, which can be used, two for firing ahead or on the beam, and two for firing astern or on the beam; four 8.7-cm. Krupp guns, and 7 machine-guns. The "Gorm" is a single-turreted vessel, in which are mounted two 10-in. guns, she is protected with 7-in. armour on the belt and sides, and with 8-in. on the turret; both she and the "Odin" are quite old ships. In the early part of the year will also be commissioned the cruiser-frigate "Fyen" for a four months' cruise in Transatlantic waters; the cruiser-corvette "Dagmar" as training ship for naval cadets for a three months' cruise in European waters; the cruiser "Diana" for a five and a-half months' cruise in Iceland; the sailing brig "Ørnen" as training ship for boys for a five months' cruise in European waters; the cruiser "Absalon" and a 1st class torpedo-boat for service as cadet-training ships and for target practice in home waters; the gunboat "Falster," as engine-staff training ship; and the gunboat "Grönsund," with the surveying ship "Hauch" for the protection of the fisheries on the west coast of Jutland.

In the extraordinary budget are demanded: 75,000 kroner for the building of a mining vessel and a submarine mine-defence of Copenhagen; 76,000 kroner for the repair of ships, and 366,000 kroner for armaments. The sum necessary for hydrographical work will also be demanded, and the results of the work between 1891-94 will be published by the Ministry of Marine.

("Mittheilungen nach Politiken.")

**France.**—The following are the principal appointments which have been made:—Rear-Admirals—Gigault de la Bédollière as Member of the Council of Works, Touchard to Ministry of Marine as Sub-Chief of the Staff, de la Bonnninière de Beaumont to command of Naval Division in the East. Capitaine de vaisseau—Fortin to "Bayard." Capitaines de frégate—Bonifay as Chief of the Staff to Rear-Admiral de la Bonnninière de Beaumont, Heurtel for service at the Ministry of Marine. Capitaines de Frégate Esnault and Valat have been promote to capitaines de vaisseau. ("Le Moniteur de la Flotte.")



The new coast-defence battle-ship "Jemmapes" is now almost ready to take her place in the Squadron of the North. She made a satisfactory eight hours' trial under forced draught off Brest, the engines developing 9,250 I.H.P., or 850 H.P. more than was contracted for, the mean speed for the eight hours was 16.9 knots, with 113 revolutions of the screws, being slightly under the 17 knots, which was the speed these vessels were expected to attain; with an I.H.P. of 2,000 a speed of 11 knots was reached, the coal consumption being 617 kg. per H.P. per hour.

The armoured cruiser "Dupuy-de-Lôme" has been commissioned again for her trials, which were interrupted rather more than a year ago by the collapse of the crowns of her boilers when running under forced draught. New boilers have been supplied, and her trials are being looked forward to with great interest, as a very high rate of speed is expected from her. Laid down in 1887, launched in October, 1890, her career up to the present has been somewhat unfortunate. She commenced her trials towards the end of 1892, but some defect in her boilers necessitated the complete retubing of them; in May of last year the trials were resumed with apparently excellent results, a speed of 18.4 having been obtained under natural draught with 9,500 I.H.P.; in July following, when running a preliminary trial under forced draught, the engines developed 13,000 I.H.P., giving 131 revolutions and a speed of 19.7. The trial was again brought to a premature close by the breaking of an eccentric rod; but for that there seems little doubt that a speed of over 20 knots would have been reached, and the contract I.H.P. of 14,000 developed. On the 19th October she again started to make a 24 hours' run at 18-knot speed, but after some hours the crowns of the two foremost boilers gave way, as mentioned above. Fortunately no one was hurt, and the ship had to return to port; since then she has received a complete set of new boilers of a modified type, and the trials are expected to have fairly commenced by the first week in January.

The new 2nd class cruiser "Chasseloup-Laubat" is proceeding with her trials. During a preliminary run with natural draught she averaged 17 knots. The "Friant," a sister vessel, has gone into dock to have her bottom cleaned before completing her final trials. The contract speed is only 19, and as she has already made 19.7 in her foul state, a speed of over 20 knots is confidently expected from her when she makes her final official run.

The battle-ship "Redoutable" having joined the Active Division of the Mediterranean Fleet, the "Amiral Duperré," which she relieves, will take the place of the "Colbert" as flag-ship of the Rear-Admiral second in command of the Reserve Division of the fleet, and the latter ship will be paid off and placed in the 3rd Division of the Reserve at Toulon.

The completion of the new 1st class battle-ship "Brennus" at Brest, which ought, before this, to have joined the Active Division of the Mediterranean Fleet, is likely to be postponed for several months, as, in consequence of the result of her trials for stability, it has been found necessary to remove some 500 tons of top-weight; so one of her military masts is to be dispensed with, and her superstructure lowered some 4 ft. and completely reconstructed. The ship draws far more water than was intended, with the result that her armour-belt is at present almost submerged, and this in spite of the fact that she only carries some 550 tons of coal; moreover, up to the present she has only attained a speed of a little over 16 knots, instead of the 17.5 for which she was designed. During her trials for stability, she was first heeled to 7° by artificial means (to represent the amount of heel of ship when the helm was put hard over and the ship going fast through the water), the heavy guns were then trained all on one beam, and she heeled over so much that the hydraulic machinery of the guns was unable to bring them back into the securing position again, nor could they be worked until the ship's company were all sent over to the opposite of the ship to bring her more upright; therefore it would certainly appear from the report as if the important alterations now to be carried out were absolutely essential for her safety. It is reported that the necessary work will take nearly a year, and cost about 400,000 francs.

The new torpedo-boat 183, built by M. Normand, of Havre, has carried out her trials at Cherbourg, making an average of 24.5 knots; she is 118 ft. long and of the same type as No. 182, whose trials we reported last month.

("Le Yacht," "Le Moniteur de la Flotte," and "Le Temps.")



The French Budget Committee has adopted the proposals of M. Brisson, the reporter, concerning the Naval Estimates of 1895, but even now the building programme is undecided, although an increase of 1,744,000 francs for new construction has been agreed to; it was also proposed to defer until 1896 the payment of a sum of 4,300,000 francs for contract-built ships, but this postponement has been rejected; the new battle-ship "Henri IV" is, however, to be laid down at Brest forthwith, instead of being deferred for another 12 months, and then given out to contract, as had been proposed by M. Faure's predecessor. The Minister of Marine also contemplates the laying down of two 1st class cruisers for commerce-destroyers of some 8,000 to 8,500 tons displacement, and with engines to give a speed of 23 knots; but no complete details are yet to hand.

According to the official calculations in May last, 14 battle-ships and cruisers, 36 torpedo-boats, and one submarine boat ought to have been completed during the financial year, viz., the "Brennus," "Jemmapes," "Valmy," and "Bouvines," the armoured cruisers "Latouche-Tréville," "Chanzy," and "Charner," the 2nd class cruisers "Suchet," "Friant," and "Chasseloup-Laubat," the 3rd class cruisers "Cœstlogon," and "Linois," the torpedo-avisos "D'Iberville," the gunboat "Surprise," 10 torpilleurs-de-haute-mer, 23 1st class torpedo-boats, and the "Gustave-Zédé," in all 51 vessels. Of these, among the battle-ships and armoured cruisers, there are only two which have anyway near completed their trials, the "Jemmapes" and "Latouche-Tréville," and by the latest reports the full-speed trials of the latter have been anything but satisfactory, the engines having only developed 6,300 I.H.P. instead of the 8,000 I.H.P., which is the contract H.P., while the ventilation in the stokeholes proved very defective, and the heat almost unbearable; among the cruisers and smaller vessels, only the "Suchet," "D'Iberville," five of the torpilleurs-de-haute-mer, and seven of the torpedo-boats have as yet been completed; so that, according to present appearances, the programme is much in arrears, and will have to be carried over to next year. ("L'Avenir Militaire.")

**Germany.**—The following are the principal appointments which have been made:—Captains—Von Prittwitz and Gaßron, for service at the Ministry of Marine; Hofmeier to command of 1st Seamen's Division; Gruner to command of 2nd Seamen's Division; Wödrig to "Greif;" Foss and Hessner placed on retired list. Corvette-Captains—Von Dresky to "Irene;" Da Fonseca-Wollheim to "Gneisenau;" Meuss to dockyard at Danzig; and Gertz, Director of Artillery at Kiel Dockyard. ("Marine-Verordnungsblatt.")

The Kaiser William shows no relaxation of the interest which he has taken in the navy since his accession to the throne. On the 3rd instant, shortly after 10 A.M., he arrived at Kiel, having previously spent a couple of hours at the works of the Baltic and North Sea Canal (which it is hoped may be opened for traffic at the end of next year), and where he formally opened the new high-level bridge at Levensau, which has been constructed to allow of the passage of vessels beneath it. After the opening ceremony was concluded the Kaiser embarked on board the "Hohenzollern's" steam pinnace and proceeded to Kiel, steaming down the lines of the Manœuvre Squadron before he landed. The object of his visit was to be present at the swearing-in of the naval recruits of the year for the Baltic Division, and also to inspect the seamen's battalions and the Manœuvre Squadron. At noon the Kaiser, accompanied by his brother, Prince Henry of Prussia, Prince Hohenlohe, the Imperial Chancellor, Admiral Baron von der Goltz, the Commanding Admiral of the Navy, and other high officials, entered the great drill-hall of the barracks, where the recruits were drawn up to the number of some 860. On arriving in front of the men, the Kaiser greeted them with a cheery "Good morning, comrades" ("Guten morgen, kameraden"), which was heartily responded to by the men, and then, having taken his place on the dais, the ceremony of swearing-in commenced. After the Senior Chaplain had administered the oath the Kaiser addressed the following characteristic speech to the men:—"An oath is sacred, and sacred, too, is the place in which it has been taken. This the presence of the altar and the crucifix makes manifest. They signify that we Germans are

Christians, and that at all times, in every undertaking upon which we embark, especially in the greatest of all—the defence of the Fatherland—we place first the glory of God. You wear your Emperor's uniform; you are thereby preferred above other men, and placed upon a level with your comrades in the army and navy. You enter upon a special calling; you assume duties; and you are envied by many on account of the coat you wear. Keep it honourable and unstained. That you can best do by bearing in mind the oath you have taken; you seamen especially, who, upon the ocean, have so often occasion in circumstances the most varied to witness the might of God. Wherein lies the secret of our success in overcoming our opponents, even when our numbers are inferior to theirs? In discipline. What is discipline? Unanimity in co-operation, unanimity in obedience. That our early ancestors held fast by this principle is proved by an historical example. When, on one occasion, they were waging war against the Romans, they, upon crossing the mountains, suddenly found themselves confronted by a formidable army. Knowing what a critical moment had come, they offered prayer and praise to God. Then, having bound themselves together, man to man, with chains, they threw themselves upon the enemy and vanquished them. At the present day we need real chains no longer; we have a strong religion and the oath. Remain true to them and bear them in mind! May your banners—which, in black, white, and red, are present before you—be ever held aloft, both at home and abroad. Think of your oath, think of your Emperor!"

The Kaiser, after the swearing-in of the recruits, embarked on board the flag-ship, the "Kurfürst Friedrich Wilhelm," on board of which he slept, and on the following morning, at 8.15 A.M., he inspected the seamen's battalions, which were drawn up on the parade-ground of the barracks. He then re-embarked on the flag-ship and the squadron put to sea and were exercised at steam tactics, returning to the anchorage in the evening, when the Kaiser disembarked and returned to Berlin.

("Kieler Zeitung.")

The 1st Division, consisting of the flag-ship, the "Brandenburg," "Weissenburg," and "Wörth," has proceeded on a cruise to the Swedish and Norwegian coasts, and after its conclusion will proceed to Wilhelmshaven for the winter. The "Weissenburg," the last of the four ships of that class to be commissioned, has made a most successful trial under forced draught, having averaged 17 knots, or 1 knot faster than the contract speed stipulated for. In view of the fact of these four ships being identical in appearance, it has been found necessary to give each a distinguishing mark, which has been done by means of red bands on the funnels, the flagship having one, the "Brandenburg" two, "Weissenburg" three, and "Wörth" four.

On the 5th November was launched at Danzig the 7th of the new class of small coast-defence ironclads of the "Siegfried" type; the christening ceremony was performed by Captain Graf von Haugwitz, the Superintendent of the dockyard, and the new vessel was named the "Odin."

It has been decided that the armoured gunboats, "Biene," "Basilisk," "Krokodil," "Natter," and "Hummel," shall form the Reserve squadron to be stationed for the future at Danzig; they will be under the command of Corvette-Captain Wittmer, who will hoist his pennant on board the "Natter."

("Preussische Kreuz Zeitung.")

The Allgemeine Elektrizitäts-Gesellschaft of Berlin have brought out a new life-buoy (Plate 68), which deserves notice. The buoy is capable of supporting three people, and is provided with an electric lamp, which begins to shine as soon as the buoy is detached, and is sufficiently powerful to be visible at something over 2,000 yds. As a reference to the accompanying plate shows, the lamp is contained in a frame, and the apparatus is intended to be strong enough throughout not to suffer from the shock of falling, nor to be damaged by the waves. The current is induced from accumulators, which are contained in the body of the buoy and are to retain their charge for two months, so that recharging may be effected on shore if the vessel does not carry a continuous-current dynamo. The cells are carefully fixed in a double casing and filled with a gelatinous mass, and are capable of feeding

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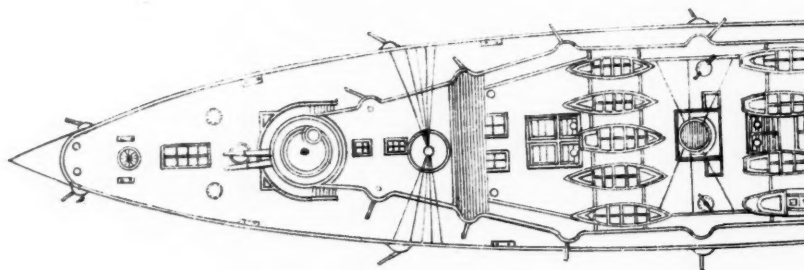
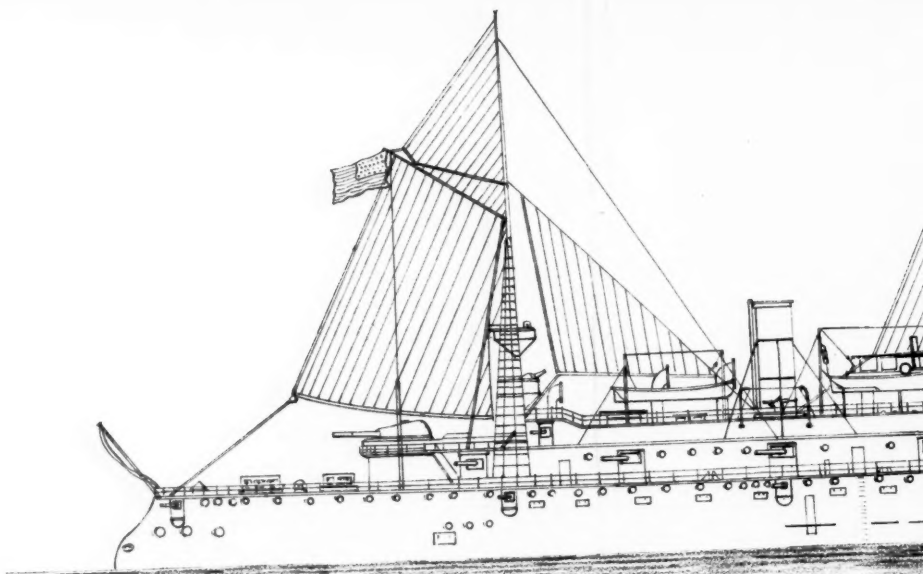
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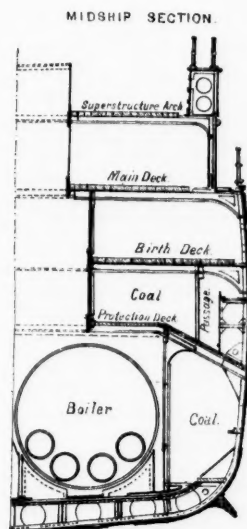
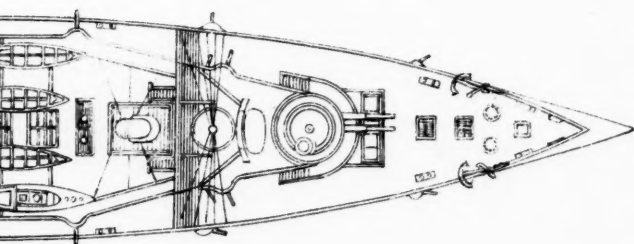
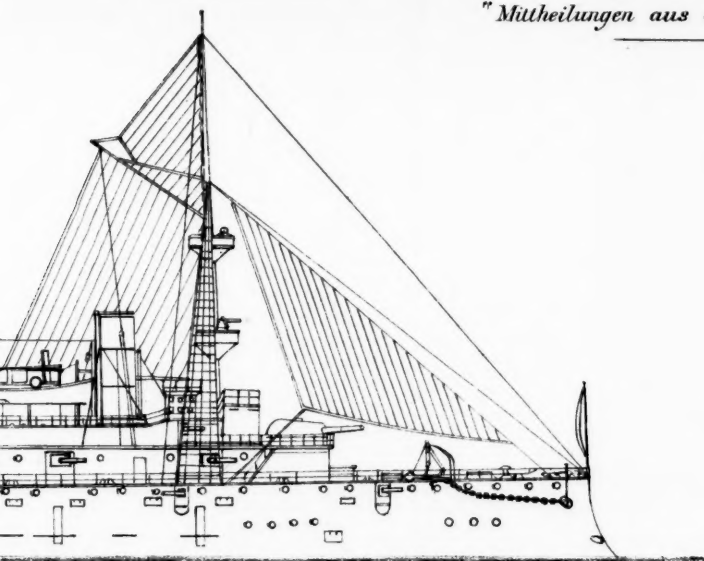
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PROFILE AND DECK PLAN OF THE NEW U.S.

*Reproduced by permission from  
"Mittheilungen aus dem Gebiete des Seewesens."*



U.S.S. 1ST CLASS CRUISER "OLYMPIA," 5,500 TONS, 13,500 I.H.P.

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the incandescent lamp of 16-candle power for six hours. A belt-shaped lens of strong glass surrounds the lamp, which is protected by a cage of tinned steel wire, rising above the body of the buoy. The leads end in strong strings. In the suspended lamp, the weight of the apparatus keeps the springs down and the circuit open. When the buoy is detached, when falling or floating, the circuit is closed. The electric appliances naturally require very careful workmanship and insulation. India-rubber, gutta-percha, and similar materials, which the salt spray would deteriorate, have been encased in leather soaked in fat; these leathers can easily be replaced. All metals are varnished; wooden parts are not exposed to atmospheric influences. The testing of the battery can be effected at any time without removing any parts. For recharging, the cells have to be taken out of their casing.

Should it be desired that the weight of the buoy, which, as represented, weighs about a hundredweight, should be reduced, the number of cells must be reduced, which would mean a reduction of the number of hours (six) during which the lamp will burn. That, however, is not a serious objection; an hour or so would probably be amply sufficient for the light to show, and would be far longer than any of the existing portfires at present attached to buoys would burn. The experiments with the buoy have been carried on now for some two years, and the inventor proposes to suspend the buoys in such a way that they can be released electrically from different parts of the ship. The new buoy has been fitted to the new German battle-ships, and been subjected to severe tests in all weathers, from which it has emerged triumphantly; when it has occasionally reached the water bottom up, it has immediately righted itself, and the lamp begun to shine. It would thus appear that the new buoy has a great future before it. ("L'Electricien.")

**United States.**—In the April Notes we gave some details of the "Olympia;" we are now able to give some fuller information about this fine cruiser, together with plans showing her profile and deck, &c.

This ship (Plate 62) was authorised by the United States Naval Appropriation Act of September, 1888, providing for one steel cruiser of about 5,300 tons displacement, to cost, exclusive of armament and of any premium that may be paid for increased speed, not more than 1,800,000 dols. Bids for the construction of the vessel were opened on June 10, 1890, and the contract was awarded to the Union Iron Works, of San Francisco, Cal., the price for hull and machinery being 1,796,000 dols., or about 374,000*l*. The "Olympia" belongs to the recognised cruiser type, but her greater size permits an expansion in those qualities wherein the ordinary cruisers are most defective, viz., coal endurance and sustained speed. Her coal capacity is 1,300 tons, which gives her an effective radius of 13,000 miles, a distance far in excess of the average vessel of this type. The additional weight of her machinery enables her to reach not only a maximum trial speed of 21½ knots, but a sustained sea speed of 20 knots, which is at least 2 knots in excess of that ordinarily maintained by ships of her class and displacement. Added to these advantages are a powerful rapid-firing battery and unusual protection for both the hull and the guns. The combination of sustained speed, exceptional coal endurance, powerful armament, and a certain amount of armour protection, makes her a valuable addition to the American Navy.

The principal dimensions of the "Olympia" are:—

Length over all .....	344·16 ft.
"    on load water line .....	340    "
Beam .....	53·2    "
Normal mean draught .....	21·5    "
Depth .....	33·5    "
Freeboard, forward .....	18      "
"    aft .....	17      "
Displacement .....	5,800 tons.

She is constructed throughout of steel, a double bottom being worked the length of the machinery and boiler spaces, whilst forward and aft the frames consist of continuous Z-bars spaced 42 in. between centres, the transverse frames in the double bottom being 48 in. apart. A complete protective deck is worked 2 in. thick

on the flat throughout,  $4\frac{3}{4}$  in. on the slopes amidships, and 3 in. on the slopes forward and aft. The top of the protective deck beams at sides are 4 ft. 6 in. below the load line, and the beams at centre are generally 1 ft. above, except at the ends, where the deck tapers down to the side line of the beams. A water-excluding belt of cellulose 2 ft. 9 in. thick is worked above the protective deck completely around the ship. It extends to a height of 4 ft. above the load water line. The space immediately above the protective deck is closely subdivided, and much of it is covered with coal, forming an additional safeguard against the effects of damage near the water line.

The vessel has three complete decks, including the protective deck, and a large superstructure amidships, which is cut away forward and aft, and ends at the 8-in. gun barbettes. She has two masts with a fighting top and electric light top on each, and carries sufficient fore-and-aft sail to steady her in a seaway.

The battery of the "Olympia" consists of four 8-in. breech-loading rifled guns, ten 5-in. rapid-firing guns, fourteen 6-pr. rapid-firing guns, six 1-pr. rapid-firing guns, four Gatlings, and six torpedo tubes. The 8-in. guns are mounted on the main deck forward and aft, in the centre line of the vessel, in elevated barbettes 4 in. thick, with equivalent conical hoods over the guns. The latter are about 10 ft. above the deck, and have a considerable training arc. The armoured ammunition tube is partly conical and partly straight, being 3 in. thick throughout. The 5-in. guns are mounted in the superstructure in such a way that four of them can fire direct ahead, four astern, and five on either beam. They are each protected by a 4-in. segmental shield. The secondary battery of rapid-firing guns is distributed to the best advantage all over the ship, and has 2-in. segmental protection. There is one fixed torpedo tube in the bow, one in the stern, and two training tubes on each broadside. The torpedo stores have stowage room for eight torpedoes. The 8-in. guns are 26 ft. and the 5-in. 18 feet above the load water line.

The full complement of the "Olympia" consists of 466 men, and the vessel is fitted as a flag-ship, the Admiral's quarters being at the extreme after end of the berth deck. The crew's accommodation forward is much superior to that ordinarily found in modern high-speed war-ships, and their quarters are spacious, comfortable, well lighted, and ventilated.

The vessel has a complete electric plant of the most modern and approved type, and great care has been taken to make the fittings in connection with pumping, drainage, and ventilation complete and efficient.

The propelling machinery of the "Olympia" consists of two independent sets of vertical inverted direct-acting triple-expansion engines, driving twin screws. The cylinders are 42 in., 59 in., and 92 in. in diameter respectively, with a stroke of 42 in. The results of a four hours' forced draught speed test showed that the vessel is capable of steaming 21.69 knots per hour with 17,300 indicated horsepower (including auxiliaries), and 143 revolutions per minute.

There are six steel boilers, each 15 ft. 3 in. in outside diameter, and with shells  $11\frac{1}{2}$  in. in thickness. Four of them are double-ended, 21 ft. 3 in. long, and the other two are single-ended, 10 ft.  $11\frac{1}{2}$  in. in length. Each double-ended boiler has eight corrugated steel furnaces, and each single-ended one has four, all 39 in. in outside diameter. The total heating surface is 28,298 sq. ft., and grate surface 824 sq. ft., amply sufficient to supply steam for the engines without unduly forcing the boilers. The water spaces in these boilers are large, and special care has been taken to avoid crowding large heating surfaces into contracted spaces, which appears to have been the principal cause of the numerous disasters to the boilers of foreign high-speed vessels. The single-ended boilers are intended to be used as auxiliaries.

Forced draught is fitted, as in all the new American war vessels, on the air-tight fire-room system, and air for it is supplied by four large Sturtevant blowers.

In each working fire-room there is a main and auxiliary feed pump, each capable of supplying twice the water required when the engines are running at maximum power. The propellers, which are four-bladed, are of manganese bronze, and the blades are bolted to the hub, and provision made for altering the pitch.

The ship is fitted with evaporators, distillers, ice machines, engineer's workshop, &c., reversing and turning engines, ash hoists, pumps for all purposes, and water in each compartment can be pumped out by either hand or steam. The main engines



of the "Olympia" are duplicates to those fitted in the United States commerce-destroyers "Columbia" and "Minneapolis," the latter vessel having three sets, whilst the former has but two. The power developed by each engine of the "Columbia" at her recent trial was 7,250 indicated horse-power, whereas each engine of the "Olympia" developed 8,650, or an excess of 1,400 indicated horse-power over that of the Cramps-built vessel, thus reflecting great credit on her constructors, the Union Iron Works of San Francisco.

The total cost of the "Olympia," when completed, is estimated at 2,388,000 dols., or about 477,500*l.* ("Scientific American," and other sources.)

The following is the official report of a test of 13-in. Carpenter armour-piercing projectiles made August 14, 1894:—Gun used, 13-in. B.L.R. No. 2, on hydraulic mount; plate, "Indiana's" 14-in. diagonal nickel steel armour, Bethlehem Iron Company, weighing about 16 tons, secured in the usual way. Line of fire normal to plate at centre; distant from muzzle of gun, 387 ft. This plate had already been attacked by three 10-in. armour-piercing projectiles in ballistic test of plate. Charges, 327 lbs.; striking velocity, 1,475 f.s.; striking energy, 16,610 ft.-tons.

Round 1.—Carpenter armour-piercing shell, normal weight and dimensions, hardened  $1\frac{1}{2}$  in. below bourrelet, struck normally 29 ft. from left edge, 30 in. from bottom, and 15 in. from edge nearest 10-in. impact; penetrated plate backing, one 16-in. oak strut, about 18 ft. of earth; left butt and fell about 200 ft. behind plate; recovered entire and uncracked, but somewhat set up. Plate through-cracked top to bottom through this impact and old impact, as above, the portion of plate to left of crack being detached and thrown down to the left. Plate also through-cracked horizontally from this impact through 10-in. impact No. 1 to right edge. The upper plate inclined outward from the backing at an angle of about 6°; held there by one loose armour bolt in upper right-hand corner and by three armour bolts along lower edge; backing and structure badly damaged.

Round 2.—Carpenter armour-piercing shell, normal weight and dimensions, hardened  $1\frac{1}{2}$  in. below bourrelet; . . . penetrated plate backing 10 ft. earth; glanced upward, fell 100 ft. behind plate, entire and uncracked, but slightly set up and distorted. Plate and backing entirely wrecked. Whole structure badly damaged, four of the uprights and three of the back struts being destroyed.

*Table of Dimensions of Shell.—Lot 4.*

	Before fire. Inches.	After fire. Inches.	Difference. Inches.	Remarks.
Length . . . . .	39·90	38·85	1·05	Shell symmetrical and uniformly set up, maximum increase in middle of body.
Bore . . . . .	12·93	13·18	0·25	
Body 1 . . . . .	12·91	13·25	0·32	
Body 2 . . . . .	12·90	13·38	0·48	
Body 3 . . . . .	12·90	12·92	0·02	
Band . . . . .	13·14	—	—	
Rear . . . . .	12·85	12·85	—	

*Lot 5.*

Length . . . . .	39·89	38·39	1·50	Shell uniformly set up, but power distorted 4 inch from original axis.
Bore . . . . .	12·94	13·20	0·36	
Body 1 . . . . .	12·90	13·18	0·28	
Body 2 . . . . .	12·90	13·36	0·46	
Body 3 . . . . .	12·90	12·93	0·03	
Band . . . . .	13·14	—	—	
Rear . . . . .	12·85	12·85	—	

There being no thicker plate than 14-in. available, other than *Harveyised* plates, and as projectiles complied with specifications as to thickness of plate, acceptance of lots 4 and 5 Carpenter 13-in. armour-piercing projectiles was recommended. ("Iron Age.")

## MILITARY.

**Home.**—We would call special attention to the excellent articles on "Our Cavalry," now appearing in the "Broad Arrow." Adequate training of the remounts before admitting them to the ranks is the keynote of all efficiency in the manœuvres, and the author's suggestion to buy two-year-olds and train them in the depot would lead to ultimate economy. On this point, Mr. James Fellis, in his "Principes du Dressage," discussing the French system of remounts, gives some practical information worthy of study.

**Austria.**—"Sterilization of Water."—In an article on army filters and the purification of water in the "Militär Zeitung," it is stated that a few grains of chloride of lime suffice instantly to destroy any bacillus present in the water (20 grains to a gallon). This amount leaves no taste in the water, but rather freshens it up. "Feric periodate," Weaver's preparation, is known to possess the same qualities, and it is claimed for it by the inventors that it is also both a preventive and a cure for cholera, malarial fever, and all other diseases due to bacillus poisoning. It was tried during the Hamburg epidemic of cholera with excellent results, but on patients in the last stage of collapse, to whom it had to be administered by hypodermic injection, no opportunity occurred to establish its preventive value, but reasoning on common sense principles it would appear to have every chance of success. The weight to be carried in an individual's kit would be almost infinitesimal, probably 2 ounces would suffice for a six months' march, and in South and East Africa, where ulcers and sores give so much trouble, it should prove invaluable for cleansing wounds, &c. We should earnestly advise travellers to these regions making independent inquiry into its efficacy.

**France.**—The Superintendent of the Government Studs in June last presented his report to the Minister of Agriculture, on the results of the horse-breeding during the year 1893, and refers in the first place to the success which has attended the purchase yearly of 50 stallions, in accordance with the decree of January, 1892, which provides for the annual purchase up to the year 1900 of that number; with the view of carrying on the work satisfactorily; he thinks, however, that some further guarantee should be forthcoming that the necessary funds will be supplied, so that the calculation can be based accordingly.

The number of Government stallions on 1st January, 1893, was 2,613, of which 194 were pure-blooded English, 95 pure Arabs, 193 pure-blooded half-English and half-Arabs, 1,782 half-breeds, and 349 draught horses. Of this number 32 died in the course of the year, and 243 were struck off the list. On the other hand, 330 were bought and 10 received from the Pompadour stud, so that on the 31st December, 1893, there were 2,675 stallions in the establishment.

The Pompadour stud possessed, on the 1st January, 1893, 60 pure-blooded stallions, of which in the course of the year 10 died, or were struck off, and 9 received in place, so that on the 31st December there were 59 remaining. Of these 12 were English, 28 Arab, 19 pure half-English half-Arab, and 6 were bought in Syria. The result of the breeding was 18 stallion and 23 mare foals.

Of the Government stallions 2,547 in the course of the year covered 132,371 mares, a number less by 7,548 than the previous year, and due to a shortness of fodder. Of the mares covered 1,134 were English, 132 Arab, 566 pure half-English half-Arab, 81,377 half-breeds, and 49,162 draught. The money from this source amounted to 960,947 francs.

Of approved private stallions 1,264 were admitted to mares. Among them were 162 English, 8 Arab, 32 pure half-English half-Arab, 503 half-breeds, and 555

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draught; they covered 61,779 mares. The owners of these stallions, mostly small landowners or farmers, received premiums of 800 to 2,000 francs for a pure stallion, 500 to 1,000 francs for a half-breed, and 300 to 500 francs for a draught stallion. In addition, 192 stallions of less value were awarded "certificats d'autorisation;" of these 176 covered 6,790 mares.

In Quimper, Arras, Besançon, Auxerre, Angoulême, Privas, and Albi local horse-shows were held; 806 horses were exhibited, and 494 received prizes; 1,290,205 francs were distributed, of which the Government contributed 827,150 and the Department 463,055.

There were imported during the year 15,269 horses, of which 973 were stallions, 11,465 geldings, 2,085 mares, and 746 foals; there were exported 24,121 horses, of which 604 were stallions, 12,744 geldings, 8,745 mares, 2,028 foals; the value of the animals exported was 21,759,850 francs, and of those imported 18,350,450 francs. ("Militär Wochenblatt.")

*Traction Engines.*—With reference to the practicability of the employment of traction engines on the lines of communication of an army in the field, we recently had a conversation with a man who had run on the high speed parcel service instituted in France between Lyons and Grenoble. The road crosses two spurs of the Alps, with steep gradients and sharp curves; total distance, 70 miles, summit level, 2,000 ft. The run had to be accomplished between 7.30 P.M. and 7 A.M., and the average running speed was 8 miles an hour, the weight drawn being 12 tons; as the road was very bad, being crossed by numerous drains and watercourses, to say nothing of the steep ascents, it is evident the maximum speed must have been very much higher.

Ultimately, the traffic having been stopped for several weeks during each winter by deep snowdrifts, the engines were taken off the road and shipped to Algiers, where they are still doing excellent service.

Our informant then went to New Zealand, where similar engines are being worked over the mountains from Christchurch to the west coast, a distance of 75 miles. On this road there were 11 watercourses to be forded, the water often being 3 ft. deep, the summit level was 3,000 ft., and in places the gradient as steep as 1 in 8, with miles of 1 in 11. The gross load was about 20 tons, and though the engines were worked without mercy, they earned, on an average, 90*l.* a week.

*Germany.*—*Side Lights on the German Staff, with Suggestions for our Own* (reprinted by permission from the "Civil and Military Gazette," Lahore).—The German Staff has won for itself a deservedly high reputation. The undeniable soundness of the broad principles on which it is based, and which alone strike the average foreign observer, have led almost everywhere to a more or less slavish imitation of its main outlines, and in some minds this tendency amounts to almost fetish worship. But Germans are human after all, and therefore, like other men, liable to error. It may therefore be of interest to throw a little light on the working of their great central institution in the Moltke Strasse, as it appears to one of the best writers and keenest intellects of their service, viz., Captain Hoenig. It is hoped that this will not only be interesting to those directly interested in German military questions—and this category should include everybody—but also to those who will take the trouble to read between the lines indications of the weak points in our own system which seem always to escape the notice of our Staff reorganizers. The original occurs in the introduction to "The Tactics of the Future," dated 1890, and without further preface I will proceed to *précis* his remarks:—"The chief care of the strategist must be to strike in the direction which promises the greatest results with the greatest possible fighting superiority.

... The existing overgrown armies require that already in peace-time the main part of their organization and preparation of all kinds should be completed. Each army stands ready to meet the different demands which can be made upon it; the parts are all assigned, and everything prepared to move on receipt of the given signal. Strategy has therefore become more than ever a science demanding the service of specialists, and thereby is exposed to the danger of developing into

a bureaucratic monster of innumerable intergearing wheels, with office men, not general staff officers at the pivots. Each man stands at his appointed place in the colossal machine, and for each there are three, if not four, selected men in reserve, each to exercise the same responsibilities in the same groove. Place one of them in another groove, and things will not work smoothly at once, for no one can be omniscient, and the man in the Russian section is unacquainted with details of the French one, and both probably know the foreign armies even better than their own. To keep the machine moving, an industrious man of real genius is required at the head of it, who carries to a certain extent in his mind the broad features of all possible warlike events, but such knowledge does not come to the ordinary practical soldier without effort. He must have grown up with and into the system he is to direct.

"This characteristic is common to all the Staffs of to-day, more or less. To deny it would be foolish. If the necessary Commanders-in-Chief are available truly to lead the armies, then even an office chief may suffice for the purpose. Berthier, Napoleon's Chief of the Staff, was admittedly nothing more. But in the absence of Napoleons, and in view of the average mediocrity of the human race, it will be safer to assume their absence, then the neglect of the only true and lasting basis on which useful Staff officers can be evolved, viz., the study of military history, may entail severe punishment. Military history, critically studied, is the only guarantee available in peace-time that can prevent the individual from merging into a pedantic official, and it would be a most healthy reform to introduce into the Service the rule that no officer should be appointed to the General Staff without having undergone a three years' training in the historical section. The man who possesses a liking for military history, and has learnt to appreciate the lessons to be derived from it by critical study, may perhaps never excel at an office stool, but will be all the more useful and reliable as a Staff officer; and the love of its study never leaves one when once the taste for it has been acquired. The masses of the future will effectually preclude such *jours de force* as Napoleon's campaign of 1814; they will compel the adoption of the simplest plans, and so far even the office man may work them, but once let the enemy's movements interrupt their progress and the shadow side to this General Staff officialism, common to all countries, will show itself. Of late years, in Germany, much has occurred to favour this bureaucratic tendency. Formerly the Staff officer had to command a company for at least three years, and a battalion for two years more; thus he remained always in close touch with the troops, knew their needs, understood the regimental officers, and kept up to date with the progress of tactics. Now, and for several years, these periods have been reduced to one year only—and what interest can he be expected to take in his men for the time? 'Thank God, at the end of this year I shall be back on my comfortable office stool,' he thinks, and the consequences to his command are only detrimental. When a company has endured a sequence of three such men its cohesion is destroyed, and it may be years before it regains it. Very often even this short relapse to regimental employment is dispensed with, and it seems that for individuals it is no longer to be considered essential. The young officers from the Staff College appear to consider themselves as possessing a vested interest in the General Staff appointments since the Staff College itself was placed directly under the Chief of the Staff, and now the evil begins early. A man may remain in his office permanently after passing, whereas the least that should be demanded is that no one should become major on the Staff without having trained a batch of recruits through their complete three years' term. This is indispensable, for only in this manner does a man learn the intimate requirements of the men, and without this knowledge a Staff officer is a hindrance, not a help. But now 'Du lieber Gott' scarcely has he returned to his regiment but his absence is felt on the Staff; because the 'office' no longer works with its accustomed smoothness, and because this 'office' must, at all costs and under all conditions, be capable of developing its full head of steam, he is called back too soon. Hence results the growing preponderance of officialdom in our Service, whilst all the time the true vital principle, the troops themselves, and the intimate connection which should, and must, exist between them for tactical efficiency, is being starved. Why, we already hear of Staff officers who are 'indispensable,' in a

healthy system no man is 'indispensable.' The service in the Staffs of the corps and divisions has also become more 'bureaucratic,' the amount of correspondence and returns grows from year to year, the Staff officer therefore tends more and more to become chief clerk. The special work demanded by the manœuvres are mostly of purely routine nature, and bring no change to the worker. New to him the first year, in the second they are practically merely repetition, only with the slight variation induced by a change of district; and no one will contend that these labours demand much 'judgment'—a little mechanical knack will suffice for all purposes. But 'judgment,' *i.e.*, 'tactical judgment,' can only be acquired by the Staff officer through practical exercises ripened by experience. Mere knowledge of the enemy's forces, the theatre of war, and practice in sifting reports and drafting orders is not enough, and the last two can only be efficiently performed by the aid of his tactical judgment. Certainly, under existing conditions, the gentlemen in the railway section must remain office men, but there is no great harm in that.

"It is fundamentally false that strategy ceases and tactics begin on the battlefield; the two are intimately connected till far within the sweep of the bullets. . . . Strategy, apart from a few fundamental principles, changes its methods with every new invention . . . but strategy is relatively permanent compared with tactics, whose essential element is change. Hence, in tactics, clear comprehensible principles must be laid down to guide the intellect of the executive officer. Where this is not done, then an army would require to be permanently accompanied by a publishing department to keep it supplied with regulations up to date; but with tactics things often go as with fortresses: instead of working to meet the conditions of the future, fortress architecture lags behind the conditions of the present, and before the works are completed they are already superannuated. And the same is too often the fate of new drill regulations. Armies have conquered in spite of their old-fashioned drill books—but then strategy helped them out of the difficulty; and armies have been beaten in spite of excellent up-to-date drill books—then it was faulty strategy that left them in the lurch.

"Strategy and tactics must therefore go hand in hand, and both are capable of being acquired by a critical study of military history and the military sciences. If strategy is cultivated without reference to the limitations imposed by natural conditions on the ultimate factor, the *man*, and he is considered only as a pawn, the game ceases to be an art and becomes a trade. If tactics is taught without reference to the higher necessities involved by strategy, you may get perfect drill masters and adepts in caring for their men, but you will get no leaders in the highest sense of the word. Both in tactics and strategy the ultimate factor to be reckoned with is *human nature*, and for the same reason that the leader requires strength of will, endurance, and a high sense of duty to fulfil his mission of command, every man throughout the army requires to possess the same qualities in the highest degree that sensible training can evolve them."

The above, especially the latter part, is not a verbatim translation, but a tolerably free, though, I trust, accurate, rendering of the author's thoughts, and it affords ample material for application to our own circumstances. To begin with the latter paragraphs. Nothing could fit our case more accurately. Our military history shows that we have suffered from chronic divorce between the two factors—strategy and tactics. We have had leaders second to none in their forethought and knowledge of the men and their requirements; but this very knowledge and forethought has hampered them from rising to the level of the strategical requirements. We have nursed our men so carefully to prevent avoidable suffering, that our enemy has escaped us without undergoing a decisive crushing, when a little less regard for individuals and wider grasp of the necessities of the situation would have settled the matter finally in a few hours, and at an infinitely less cost than our dilatory methods finally entailed on us. The Crimea and the Mutiny afford cases in point. Generally this inability to see the wood for the trees, this forethought for the individual welfare of the particular man, due to the traditions of the long-service dynastic armies, proved the stumbling-block over which all Napoleon's opponents, except Wellington, came to grief. Wellington, Frederic, and Marlborough are the only three men who surmounted this difficulty; eliminating these three names, it will be found that tactics, carried to an extreme, simply

chained the resolution of the leader, and prevented him *daring* enough to win. Napoleon sinned the other way, except once when he failed to put in his Guards at Borodino, a failure attributable to his physical breakdown at the moment; generally he employed his men without regard to their lives and capacities. His tactical methods he took as he found them, and never troubled to improve them, for the resources of France loomed before him as inexhaustible, and any stick was good enough to beat his adversaries. If Napoleon had united in his own person the same command of resources he actually possessed and the tactical skill of Frederic, but for Nelson and the British Navy, where would his conquests have ended? The problem is a curious one, and I leave it to others to work out the answer, only indicating that by proper discipline and forethought for his commissariat (impossible for him, as it happened, under his conditions) he might have reduced his losses on the march by one-half, say an economy of a million lives at least, and with a cavalry equal in manœuvring power to Frederic's, and an infantry as well disciplined as our own, he would have required fewer battles to effect his purpose, and won each of them with half the loss, say a net saving of 200,000 lives. Follow the consequences of this economy on, and a very wide field of conjecture indeed is open.

The consequence of the extreme regimental drill-master school (using the term "drill-master" in its opprobrious sense) still survives in our own Service, nourished by our old long-service conditions. The extreme strategic school of Hamley, by its treatment of corps and divisions as pawns without reference to the ultimate cohesion of their constituent particles, may have done something to diminish the tendency, and in so far been of service, but in the main it persists unweakened, though it has taken a most extraordinary turn. The main tendency of the old line tactics school was to nurse the men to the utmost by moderate marches, and even by avoiding encounters when that could be done; but once it was compelled to fight, the tendency was to decide the matter at one blow, exacting from the fighting line the heaviest local sacrifice they were capable of enduring, with the true conviction that thus the collective loss would be reduced to a minimum. The system was invented by Frederic to meet his conditions, which happened to be identical with our own, viz., limited numbers of very expensive soldiery. Thanks, however, to our limited knowledge of the German system, the direct and almost unmodified descendant of the French Revolutionary era, our extreme regimental system has centred itself on the effort to reduce the risk to the individual by the relaxation of discipline and the inculcation of self-preservation as the first duty of a soldier. This effort, however, is bound to defeat its own ends. We may still win victories, as the French and Germans have done with the same system, but it can only be at a greatly increased *collective* cost.

How then should we train and select our Staff? The first point to be settled is, what do we mean by Staff? To this first question I cannot help thinking that the German answer is the best one. Heads of departments, or commanders of special arms, are not the Staff, they are executive officers to carry out the General's wishes and to give him their advice if required; but if the General knows his work, advice will rarely be called for. The Adjutant-General's Department is not staff either. In Germany its service is provided by the "Adjutantur," which has nothing to do with the "General Staff," and is recruited direct from the regimental adjutants without Staff College training. The field of the Staff, therefore, is limited to the Quartermaster-General's Department, which title should be abolished and changed to "General Staff" only, and under this General Staff should be grouped the Intelligence Department, railways, historical section, and education section; but the latter to have nothing to do with sergeants' certificates and regimental schools, but devote its whole time to educating Staff and officers to communicate their knowledge to the troops. Such a change could not be introduced by a stroke of the pen, at least it would not work if it was; we have yet far to go and much to learn before it can become feasible, but it is the goal to which we should be striving. In the old days, and with few exceptions, the functions of the Staff were to act as bear-leader to their General, and here and there this condition of things may still exist. Is there any reason in the nature of things why a General should require the advice of a junior to enable him to make up his mind? If there is I fail to see



it. If he does require it, he is not the right man for the post, and what we require is a system which shall ensure the right man for the post. To secure this we must begin low down, and our regimental system must give the young ambitious officer opportunity to show what he is worth, which at present it fails to do. Then it must be recognised as a point of regimental honour that only the best men should be allowed to compete for the Staff. Our regulations provide abundantly for this, but they are not carried out in the spirit intended. To avoid the friction which always attends the working of a reform from below, a court of at least seven officers, including at least four captains, should decide on the merits of the candidate.

There are many hard cases in the Service, and not the least is the difficulty of the poor man to keep up with his richer comrades, but the difficulty is not peculiar to the Service, but exists in every other branch of life with which I am acquainted. The army exists for the country and not for the individual, and it is for the good of the Service that rich men should use their means for the acquisition of knowledge. If the poor man has determination, self-denial, and brains he will be a hard man to stop, and a good one when acquired; but every one must understand that in peace as well as war, in the army as well as in civil life, if you would play for high stakes you must be prepared to lose. It is annoying to get a bullet through the head at the moment the Victoria Cross is in your hands, and it is equally annoying to fall out of the race stone-broke with the prize almost within your grasp; but, once for all, it is inevitable, and the risk must be faced. But the prize must be worth having to encourage men to compete for it, and lowering the status of the Staff in the army is not the way to do so. If the primary selection of candidates for the Staff in the regiments were made a reality there would be fewer hard cases of a good man debarred from competition because another officer from the same battalion was already at the College.

The candidate thus regimentally selected should next be attached for three months to the staff of a Divisional General, much as at present, but the three months should be a reality, not a sham as it too often is. At first, of course, no change could be effected. A General who knows nothing except *en amateur* naturally can teach but little, but as the new system began to operate, first the Staff officers and then the General could in three months do a very great deal if they appreciated rightly the responsibilities of their trust. The course should be during the drill season: the young officer should ride with the Staff officer and see how he went about his work; on off days he should be sent out to make rapid reconnaissances of a practical nature, sketches of the ground manœuvred over, and reports on the operations performed. If he has already passed for his company his knowledge of topography should be ample for the purpose, and the discussion of his reports by the Staff officer would fix in his mind something of the general principles of the three arms. It is at this stage of the proceedings that most of the weeding-out should be done; it is unfair to the individual to let him incur considerable expense and waste time only to be eventually disappointed, and, what is worse, it clogs the wheels of the whole Staff College machine to send up to it a man obviously inefficient for ultimate employment. The College costs a good deal as it is, and every useless individual turned out by it means so much waste of public money. Besides, a little rigorous selection at this period weeds out the hard bargains who apply for the Staff College merely as a means of avoiding foreign service. After the three months under the Divisional General should follow an examination, *qualifying*, as in Germany, not competitive as with us. Competition under a centralised bureau, which, owing to the dispersion of our forces all over the globe, is unavoidable, leads inevitably to the survival of the parrot type, and eliminates the thinker; but we don't want the parrot type and we do want the thinker. The German methods must again be followed here. A couple of languages, two mathematical papers to test the reasoning powers, and three military memoirs on any of the great tactical or strategical questions of the day, to test the man's power of original thought and expression, should amply suffice.

The Staff College deserves a paper to itself. On leaving the College the officer should be transferred, with a step in rank, to another branch of the Service for three years, taking actual command of a troop or company, as the

case may be. Then two years' employment at the headquarters staff and return to the arm in which he has not yet served, again with a step in rank. This is in the main the German system. I am well aware of the difficulties and friction which would arise if it were put in practice at once, but vested interests even now are no longer as all-important as they once were, and they must be humbled still further. The good of the individual must yield to the good of the Service, and the interests of the Service imperatively demand that Staff officers, from whom eventually the leaders are chosen, should not only be superficially acquainted with the other arms, but that they should understand absolutely, as experts, every detail involved in the several arms it is their duty to inspect. The superstition which still exists, and has disclosed itself very recently in criticism in the press in the case of the recent appointments in India, that a cavalry man cannot be expected to understand infantry, or an engineer or artillery man the cavalry, and all other combinations or permutations of the idea, requires to be definitely knocked on the head. If a man possesses the power of commanding men at all, and has been taught systematically, when young, to use it, he can soon master the difficulties of detail which encounter him on changing from one to the other. It is of course very much harder for an infantry man to step into the shoes of a cavalry or artillery man, but, if he is intelligent and willing to learn, a couple of years should amply suffice for the purpose. It is the same with regard to the decision of other military problems, questions of the expediency of fortifications for instance. A General properly trained and worth his salt should require no assistance from his engineer to decide whether to erect them at a given spot or not, though the details may be safely left to the specialist. The trouble all along has been that the artillery and engineers started, relatively, intellectually far ahead of the other arms, and then throughout their service, whilst the centralised system of the cavalry and infantry was at work atrophying the will and character of its officers, the relatively decentralized organization of the scientific arm was increasing the power of command in its members. But the whole system of the Service, by preventing the free transfer of officers from one branch to the other, hampered the scientific officers, especially in acquiring an adequate acquaintance with the details involved. Hence gunners and engineers who reached commands, being generally in point of character strong men who would not brook opposition, made up their minds on insufficient information and declined to modify their opinion. Such men are difficult to get on with in peace; in war, they may be positively dangerous. The remedy is to level up the four services and to make the line and cavalry sufficiently attractive to induce the best intellects to enter them; and to a great extent this is already arranging itself, for, since the abolition of purchase, the intellectual gulf between the scientific corps and the line has been very materially reduced. Indeed, if the over-centralized system of the latter could be abolished, and the company and battery organization of the former substituted, as it is in Germany, the differences in the higher ranks would soon become practically *nil*, and the best man would win irrespective of his military origin.

*The Lilienthal Flying Machine.*—(By permission from the "Royal Engineers' Journal.")—Herr Lilienthal, of Berlin, has for many years past been working at the problem of flight, and as he now seems to be very fairly successful, an account of his apparatus and the method of using it will perhaps be of general interest.

He has constructed two machines—one for soaring flight only, the other with a carbonic acid motor for rowing flight. He kindly showed me both of them at his practice ground, near Berlin, with the method of using them, and allowed me to try the soaring machine myself.

Previous to constructing his machines, Herr Lilienthal tried a number of experiments to ascertain the pressure and line of action of the air on surfaces of different shapes. His experiments are fully described in his book, "*Der Vogelflug als Grundlage der Fliegekunst*," but the following are the principal results from them:—

(1.) Soaring flight can be successfully accomplished without motive power, provided there is wind. The birds, when soaring, do not expend any power, all their movements being due to their own weight and the force of the wind.



(2.) Experiments with small rotating apparatus give far smaller wind pressures than experiments conducted in the open against the moving air.

(3.) With plane surfaces there is much less lifting power than with slightly curved surfaces.

(4.) The line of action of the resultant air pressure is not normal to the surface of a plane or to the chord of a curved surface, but varies greatly according to the angle of inclination of the surface. With curved surfaces, at small angles, it acts forward of the normal.

(5.) Repeated experiments show that the wind does not flow horizontally, but has a slight trend upwards of about  $3^\circ$ . In warm weather, this angle may be very much increased.

(6.) When the wind is blowing directly against the machine, the lifting power is largely increased.

(7.) When the wind is moving in the same direction as the machine, the latter must move faster than the wind, or it will be forced downwards.

(8.) Although it is possible to proceed in any direction by soaring flight only, such a process will generally be very slow, and it is consequently desirable to have a motor powerful enough to drive a machine in the given direction without soaring.

(9.) A man is not powerful enough to work a wing-flapping machine under all circumstances.

(10.) Only the outer half of a wing should flap, the inner half being for sustaining and not for driving.

Herr Lilienthal has up to the present constructed two machines, and he is now constructing a third one of a slightly improved pattern. His first machine is for soaring only; it weighs 40 lbs., and he has succeeded in soaring flight very fairly well. His longest flight was about 400 yards, and he has been 200 ft. up in the air. His second machine is very similar to the first, but the outer halves of the wings feather, and it is fitted with a small carbonic acid motor weighing 40 lbs., capable of working the machine for about  $1\frac{1}{2}$  hours on a fair day. The machines are made of willow and canvas, the willow being bent into the necessary shapes to suit the curvature. The arching of the wings is  $\frac{1}{18}$  of the spread at the deepest part, running out to nothing at the wing tips. The outer halves of the wings move through an angle of about  $30^\circ$ ; there is no hinge, only the spring of the wood.

Both machines are very neatly made, all the attachments being very carefully designed. Most of the guys underneath are of wire; those above and connecting the tail are of stout cord.

The new machine will be very like the second one, but the surface will be slightly larger, the machine itself rather lighter, and the wing tips will work on a hinge. The piston rods will be attached to the wing levers directly, and not by chains and pulleys, as in the second machine.

Herr Lilienthal's practice ground is at Lichterfelde, about seven miles from Berlin. The hill from which he takes a preliminary run is about 150 ft. high, with an average slope of  $\frac{1}{3}$ . Four yards round the top is a grassy slope; the remainder of the slope is covered with sand, in case of accidents. The first thing to be learnt is how to use the machine without a motor, and a good deal of practice is required to get off the ground and keep one's balance when in the air.

*Starting.*—Stand on the top of the hillock, facing the wind, and hold the machine so that the wings are about level. Then take a sharp run downwards for about four or five yards, and you will feel yourself rise in the air and float gently down the slope, the inclination of which will depend on the force of the wind; the legs to be kept well to the front.

*Moving to Right or Left.*—Throw the weight of the body towards the direction it is intended to move.

*Coming down.*—In coming down, when the feet are about 3 ft. from the ground throw the legs and weight generally well back and tip the wings backwards.

A good deal of practice is required to use the machine well. Herr Lilienthal is very expert at it; on a perfectly calm day he glided downwards a distance of about 90 yards. As regards using the motor, this was tried for the first time on the day of my visit; only one or two flaps were given, as Herr Lilienthal is, very rightly,

very cautious when trying anything new. The movement of the wing tips did not in any way disturb the equilibrium.

The following appear to be the principal points to be attended to when practising:—

(1.) A beginner should commence on a day when there is very little wind. He should not start from any great height. I commenced by starting from a point about one-fourth of the way up the hillock, and gradually worked up to a point about six yards from the top.

(2.) It is necessary to take a good sharp run.

(3.) The machine should fit the operator, just as a bicycle should have dimensions suited to the person using it. I found this particular machine rather awkward to hold, as the arm rests were too big for me.

(4.) It is not safe to practise in a breeze of more than about 22 miles per hour with such light machines. If the wind exceeds the above, greater weight should be taken up; in what proportion, however, has not yet been determined.

(5.) No difficult feats should be attempted at first. What is wanted is to learn the use of the machine, and get accustomed to being in the air.

(6.) Gusty weather is specially dangerous, as it makes keeping the equilibrium very difficult.

(7.) Until the operator is well accustomed to the use of his machine, *he should not attempt turning round to move with the wind.* When turning, wide sweeping circles should be used.

(8.) When landing, the weight should be well thrown back, the object being, of course, to stop the forward velocity.

(9.) The manœuvres performed by birds should be carefully studied.

The following works contain a good deal of information about Herr Lilienthal's work, and are well worth studying:—

(1.) "Der Vogelflug als Grundlage der Fliegekunst." Von Otto Lilienthal. Berlin, 1889.

(2.) "Progress in Flying Machines." By O. Chanute, C.E., New York. "The American Engineer and Railroad Journal."

(3.) "The proceedings of the German Aeronautical Society." Berlin.

(4.) "Prometheus." Weekly Berlin scientific paper.

J. D. FULLERTON, Major, R.E.

Chattenden, 14th November, 1894.

**United States.**—Turning over the back numbers of the "Journal of the Military Service Institution" (U.S.A.), we have come upon an unusually able paper on the "New Cavalry Drill," by Lieutenant W. H. Smith. Into details we need not enter, but some of the writer's comments show so distinctly where the shoe pinches, and reveal a state of affairs so strikingly identical with the condition of things that formerly obtained in India, and is yet by no means altogether eliminated in England, that we propose to quote at considerable length. It is also of special interest as showing how like causes—viz., the habit of moving in small detachments, in which small errors do not accumulate, and a disregard for the minutiae of the riding school, inherent apparently in the Anglo-American race—lead to the same results. Speaking of the responsibilities of the squadron guides, he says:—"Everyone will admit, I think that if any number of men, no matter how few or many, be placed in line, and then started forward, all of them, moving straight to the front and at exactly the same pace, a perfect alignment will be kept. The secret, therefore, of moving in line is nothing more than riding straight with regularity of pace. Our regulations seem to deem the riding straight of such little importance that they entrust it to non-commissioned officers, who only get the chance of practice two or three times a week, who usually do not appreciate the importance of this fundamental requisite of a guide, and from want of practice would not be able to do so if they did. If any officer thinks it a very simple matter to ride perfectly straight, let him take his horse out on ground sufficiently soft to show his tracks, and then attempt to trot or gallop on some distant object. After a few hundred yards let him stop and

look back. Unless he is more expert than the vast majority of officers I have known, he will see variations in his course of probably 3 to 5 ft. from the straight line. This seems very little, but it is exactly such variations which cause crowding or opening out, and when this error is multiplied, as it unavoidably is with numbers of men in line, it causes crowding or opening out far beyond what one would usually suppose possible from such a small beginning. In this illustration I have taken the most favourable circumstances of an intelligent officer not bothered by men jostling him on either side, or having his attention distracted by the numerous things which happen to a guide in the ranks when advancing at a rapid gait; but the jostling is amongst the least of the evils which arise with bodies of any size. Very frequently a guide when jostled, or when through any other cause he may have gotten off the original two points of direction, will take others not at all parallel to the true direction. In this way I have seen the direction changed as much as  $10^{\circ}$  to  $15^{\circ}$ , and the guides of other troops, being in the ranks and consequently unable to see this change of direction early enough, their troops either lose or increase their intervals, causing crowding or else increase of pace, and as this is repeated every few minutes the line begins to rock and sway, the men and horses get irritated, and, when the gallop sounds, the line, which should be closed like a wall, squanders like a pack of cards, and the effect of the shock is *nil*. This, too, when advancing over level ground, and without change of direction: substitute rolling downs and a moving object with constant change of formation, and all the evils become intensified many fold. About all the old drill regulations required of the officers was to keep out of the way of the men in the ranks. They neither regulated the pace nor the direction of the march, except to give commands. The new regulations have made one innovation for the safety of the officers: by providing that they shall not be ridden over by the men, for they now regulate the pace; but the equally important factor of controlling the direction has been left to the men. As a consequence of the little responsibility which our regulations have so long imposed on the subordinate officers, we have become the most careless riders of any civilized country. We may be roughly divided into two classes—the oldsters, who generally ride horses as old and staid as themselves, which protest vigorously against any pace faster than a walk or gentle amble; and the youngsters, who prefer horses that curvet and dance around, do anything else, in fact, but go the required pace, their riders in the meanwhile fondly imagining themselves to be the admiration of the multitude, and that their only business at drill is to pose before the men and shout out such commands as ‘Hold up your heads there,’ ‘Keep that horse in,’ &c., all of which the men are usually endeavouring to do for themselves already. In support of some of the foregoing statements, I will instance the fact that it took something over two months’ daily drill to get all the officers of five troops of cavalry so that they could ride three miles at the walk or trot with variations of less than a minute. I think it is fair to presume that it would have taken a month longer to have gotten them so that they could have ridden at a gallop with equal regularity and exactness.

“No attempt was made at these drills to increase or test the efficiency of the officers at riding straight on points, but, judging from experience, about a month more would have been required to obtain satisfactory requirements. But if it takes all this time, drilling six days a week, to train an intelligent officer, how can anyone hope to properly qualify a body of N.C.O.’s who, as a rule, cannot attend drill nearly so often? Has not the practical working of our drill regulations for years shown the inexpediency of having the guide in the ranks. How many squadrons, or even troops for that matter, in our Service can gallop in line half a mile or more over uneven ground with regularity of pace, the men well closed up, without crowding or jostling in the ranks? Very few I think.

“From my own observation, and that of others, I think that out of the 400 cavalry regiments or thereabout now in Europe, there are very few that cannot do so. I yield the palm to no one in being thoroughly American. I think European cavalries can learn quite as much from us as we can from them, but to discard a method which experience has demonstrated to be better, simply because it did not originate with ourselves, strikes me as essentially unpractical and therefore un-American. . . .

"The objection is sometimes raised that an officer cannot ride straight to his front and at the same time superintend his men. If this is ever true it is due either to the inefficiency of the officer or the want of training or practice of his horse. Officers of European cavalries manage to set the pace and direction as well as superintend their men. Shall we acknowledge ourselves inferior to them in this vital qualification of a cavalry officer? . . . I have been thus prolix on the subject of guides, because I regard pace and direction as the foundation of all cavalry movement, and if we are going to attempt to be anything more than *mounted infantry* I think it is very essential that we make some change in our drill regulations so as to make the chief at all times the leader of his command."

The above quotations give about as complete a picture of the state of the American cavalry as one could wish to find, pointing out the precise state of development they have reached, the causes of their inefficiency, and also the standpoint of the critic himself, whom I would gently remind that, though the difficulty of manœuvring with the guides in the ranks is undoubtedly greater than when they ride in front, yet where sound training of the recruits exists it is possible for cavalry to fulfil the highest demands of efficient manœuvring, with not only guides but officers and all in the ranks. The Austrians did it for years, and attained the very highest standard, and though they have now gone in for the German system, it is principally because, with the short service system introduced since 1866, greater efficiency is attained in a shorter time.

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Meteorological Theories of M. Duponchel." "Majunga, its Importance and its Future." "Electricity in America." "Organization of the Ministry of Marine in Italy." "Remarks on the Compasses of the Torpilleur-de-haute-mer 'Orage.'" "Chronicle of the Port of Lorient, 1803 to 1809." "Naval Chronicle, Austria, Italy, England, United States." "Naval and Colonial Bibliography." "The Sea Fisheries."

*Le Yacht*.—Paris. 3rd November, 1894. "The Budget for the Navy for 1895" (E. Weyl). "Yachting News, the last Racing Season in England." "The Steam Yacht 'Jeanne Blanche,'" with plates. "Naval Chronicle, Home and Foreign." "Merchant Navy, Home and Foreign." 10th November. "The Death of Alexander III" (E. Weyl). "Yachting News." "Electricity, Electric Search-lights." "Naval Chronicle, Home and Foreign." "Cruise of the Yacht 'Chazalie' in the Mediterranean." 17th November. "The Councils of the Navy and the Parliamentary Enquiry" (E. Weyl). "Remarks on the Italian Navy, the Budget, and the Arsenal." "Naval Chronicle, Home and Foreign." "Merchant Navy, Home and Foreign." "New Steam Boat with Naphtha Engines," with plans. 24th November. "The Effects of Artillery at the Battle of the Yalu" (E. Weyl). "The Expedition to Madagascar." "New Collapsible Air Life-buoy." "Naval Chronicle, Home and Foreign." "Cruise of the Yacht 'Chazalie' in the Mediterranean."

*Le Moniteur de la Flotte*.—Paris. 3rd December, 1894. "A Submarine Gun" (Marc Landry). "The Navy in Parliament." "The Accident on Board the 'Aréthuse.'" "Colonial Notes." "Naval Chronicle, Home and Foreign." "Promotions, Appointments, &c." 10th November. "On Sea-going Torpedo-boats" (Marc Landry). "Death of the Emperor of Russia." "Cruiser Warfare." "The Torpedoing of the 'Aquadaban.'" "Madagascar." "Naval Chronicle, Home and Foreign." "Colonial Notes." "The New Law instituting a National Mutual Assurance Society for French Seamen." "Promotions and Appointments, &c." 17th November. "The Expedition to Madagascar" (Marc Landry). "The Budget for the Navy." "Death of the Emperor of Russia." "Corean Affairs." "Naval Chronicle, Home and Foreign." "Promotions and Appointments, &c." 24th November. "Enquiry into the Sea-going Torpedo-boats" (Marc Landry). "The Capture of Timbuctoo." "Colonial Notes." "Naval Chronicle, Home and Foreign." "Promotions, Appointments, &c."

*La Marine Française*.—Paris. No. 1. 10th November, 1894. "Our Programme" (Paul Fontin). "Defence of the Coasts" (Rear-Admiral Réveillère). "The Constitution of the French Navy." "Military Objections to the Canal des Deux-Mers." "Naval Chronicle, Home and Foreign." "Notes on the Merchant Navy." "Yachting Notes." "Geographical and Colonial Movement." No. 2. 25th November. "The Defence of the Coasts" (Rear-Admiral Réveillère) (*continued*). "Constitution of the French Navy." "Promotion of Naval Officers." "Military Objections to the Canal des Deux-Mers" (*continued*). "Naval Chronicle, Home and Foreign." "Merchant Navy, Home and Foreign." "The Geographical and Colonial Movement." "Yachting Notes."

*Germany*.—*Marine Rundschau*. Berlin. November, 1894. "The Influence of Gunnery Training upon the Course of the Naval War between England and America, 1812-13" (*concluded*). "What Harbours in East Asia are to be Avoided at certain times of the year as Dangerous to Health; what are the Diseases to be Feared, and what Disposition ought to be made as to the Movements of Ships on the Station." "Translation of Lieutenant Somerset's Essay for Gold Medal." "The Results of the Trial of the new Battle-ship 'Kurfürst Friedrich Wilhelm.'" "Report of the Commander of H.I.M.S. 'Iltis' on the events in the Korea." "Foreign Naval Chronicle—France, United States." "Promotions, Appointments, &c."

*Italy*.—*Rivista Marittima*.—Rome. November 1894. "Historical Account of the Corean Question." "Electrical Navigation and the Navy" (G. Martinez,

Italian Navy). "A Rapid Glance at the General Conditions of the Art of Sailing among the Ancients." "Tunny Fishing at Favignana." Letters to the Director: "The English Squadron at Leghorn in 1652." "Emigration and Naval Hygiene;" "Method of Determining the Electrostatic Capacity of any Condenser without the use of a Condenser of Known Capacity." "International Institution of Engineers and Architects." "Naval Notes—Austria, France, Germany, England, Italy, and United States." "Artillery, Armour, and Torpedoes." "Notes on General Subjects." Supplement: "A Description of the Central Administration of the principal Navies of the World."

**Russia.**—*Morskoi-Sbornik*.—St. Petersburg. September, 1894. "Regulations of the Naval-Cadet Corps." "Regulations for the Technical School of the 'Marine Department.'" "The Influence of the Bosphorus on the Formation of Currents in the Black Sea." "The Port of Biserta." "Naval Chronicle, War Operations in Corea, the Chinese and Japanese Fleets, &c." "Some Remarks on Torpedo-boats."

**Spain.**—*Revista General de Marina*.—Madrid. November, 1894. "The Advance in the Electro-magnetic System." "Notes on the Voyage of the Cruiser 'Don Juan de Austria' in Chinese, Japanese, and Siberian Waters." "Naval Education." "Accidents to the Engines of our Ships of War." "The Earthquake at Constantinople, 10th June, 1894." "Conclusions of Admiral Vallon on the Official Report in regard to 'Magenta.'" "The Evolution of the Torpedo." "Aluminium Torpedo-boat." "Naval Chronicle, Home and Foreign." "On the Use of Steel for Guns" (*continued*).

**United States.**—*The United Service*.—Philadelphia. November, 1894. "Origin and Developments of Steam Navigation" (the late Rear-Admiral Preeble, U.S.N.) (*continued*).

## MILITARY.

**Austria-Hungary.**—*Militär Zeitung*.—Vienna. No. 39.—"The English Fleet," fairly represents Continental opinion, summed up in the words, "Even the most Chauvinistic now admit that England is no longer the first sea Power; she has no men to man her ships of war, and her merchantmen are every year becoming more and more dependent on foreign seamen. War for England now would mean ruin." "The Organization of Voluntary Help for the Sick and Wounded in the German Army." No. 40. "The Emperor Alexander III." "Organization of the Voluntary Help for the Sick and Wounded in the German Army." "Movements of Troops in Russia," details of the recent reinforcement of the Russian western armies, given in last month's Notes. No. 41. "The Law on Recruiting in Parliament," strongly worded protest against a speech by a man named Schamanek, a Jung Czech, who declared that in the event of war the first use the men would make of the rifles would be to shoot their "tormentors," i.e., their officers, in the back. "The French Foreign Legion." No. 42. "The Instruction of our Officers." "Gibraltar," note on the report of the Gibraltar Committee.

*Die Reichswehr*.—No. 693. "Swearing in the Recruits." "Home Industry and the Navy," more about the "Miramar" and her reconstruction. No. 694. "The Rifle of the Future," review of proposals by Colonel Ortus (France), who thinks the ultimate solution will be an electric or compressed gas weapon, killing without noise, flame, or smoke; if liquid laughing gas were used, the products of discharge would act as a wholesome stimulant to the fighting troops; an army thus armed would be indeed invincible. No. 695. "Promotion in the Commissioned Ranks" deals with complaints against the existing system of promoting staff officers over the heads of others; sensible article worth reading. "Army Filters and Water Sterilisers," worth reading. No. 696. "The Coming War in Madagascar." "Maps and Map Reading," an excellent article on the



abuse of local large scale maps in manoeuvres, and the shortcomings of the old small scale ones formerly in use. The new staff map scale, 1 by 200,000, is highly praised; officers must be compelled to use this only. No. 697. "Defenceless." It appears that it is impossible to prosecute Schamaneck for his insults to the army alluded to above (see "Militär Zeitung.") "Military Instructors and Professors." No. 698. "The Russian West Army," reply to unfavourable comments on a previous article, "The Russian West Army and its Leaders," in last month's issue. "Promotion in the Artillery." No. 700. "Wishes and Anticipations of the Field Artillery," worth reading. No. 701. "The Training of Our Officers," a practical article. "Feeding and Equipment of the Russian Officers"—no arrangements exist to feed or supply them on field service; they must make their own, and according to this writer are generally worse cared for than the men. No. 702. "The Defences of Pekin." No. 703. "The Tactics and Practical Work of our Cavalry," review of a book by Major-General von Czerliin; the book seems worth reading.

**France.**—*Journal des Sciences Militaires*.—November. "The Elements of Strategy." "General Principles of Plans of Campaign." "Dernier Effort," by General Phillebert. "Two Questions on the Moral Education of the Soldier," a sensible and suggestive article. "The rôle of the Belgian Fortifications on the Moselle and the North-eastern Defences of France," by Commandant Josset; worth reading. "The Combat of Nuits," 18th December, 1870. "The Campaign of 1814" (Weil).

*Le Spectateur Militaire*.—15th November. "The Defence of Fort Julien against the Anglo-Turkish Forces in 1801," an incident in the Egyptian campaign of that year. "More about Old Soldiers," worth reading. "The New Infantry Regulations" (L. Brun). "The Rifle of the Future," very progressive; the author predicts a still more infinitesimal calibre and noiseless explosion—thinks it will be something electric, but is not clear what. 1st December. "The Manœuvres of the IVth and XIth Corps in 1894," L. Brun; narrative is clear, and the comments, as far as they have gone, sensible and well founded. Of the battle of Songy, 13th September, the author says:—"Generals badly informed of the position of the enemy, hence errors in direction, and great blows struck in the air. This is the edifying picture offered us by the battle of Songy." "Preparations for Napoleon's Expedition to Syria." "Paris, Thiers, le plan Trochu, and l'Hay," Noël Desmayson's review of M. Duquet's seventh volume; favourable. "The Shadows of the Dead," Boissonet; a rambling disquisition on the laws of war, quarter, and to sick and wounded, &c.

*L'Avenir Militaire*.—2nd November. "The Question of the N.C.O.'s" calls attention to the growing difficulty of inducing men to re-engage; should be read. "L'Echéance du 8 Novembre" attacks the War Minister for sending the men back to the Reserve half trained; 61,000 have thus been sent down. "Aluminium Cooking-Pots:" result of experiments during last manoeuvres; verdict very favourable. 6th November. "The N.C.O.'s again." "Madagascar." "Military Memoirs and History:" a timely and much-needed warning against the torrent of garbled memoirs now issuing from the Parisian publishers. 9th November. "L'Echéance du 8 Novembre:" the whole of this number is taken up with this question; the "Avenir" solemnly warns its countrymen to beware of the danger threatening from English interference in Madagascar. 13th November. "Madagascar." "Note on Death Sentences in the French Army," with reference to some remarks in "La Riforma;" there were 53 death sentences in 1893, but how many carried out not stated. "Civil Employment for Retired N.C.O.'s" 16th November. "The Case of Captain Dreyfus;" urges warmly that the case should be heard in open court (confidence is dead in France, we have had enough of Wilson scandals). "The Question of Transport in Madagascar," by General Cosseron du Villenoisy; an article by an expert, warning people not to expect too much from Décauville railways and other much-advertised fads of inventors. "A Railway from Mævatanana to Tananasriva;" the editor evidently never read

the preceding article, for this one advocates a railway, gauge not stated, but apparently normal, to be laid at the rate of 2,200 yds. a day; with some experience of frontier railway work, we shall not tender for the contract. "Escorts to the Recruits for the Algerian Penal Battalions." "Le Sous-Officier;" review of a book which appears to be the converse of Descave Sous-Officiers; favourable. 20th November. "The Expedition to Madagascar;" again denounces General Mercier for sending down the trained men to the Reserve at this critical moment, and though stating that no importance is to be attached to the article on the British Cabinet Council in the "Journal" on the 4th November, it republishes it *in extenso*. "Schools of Instruction for Reserve Officers," complains that they are not properly attended. "The Rearmament of the Field Artillery." "The Case of Captain Dreyfus." 23rd November. "The Future of the Infantry;" another attack on General Mercier, pointing out the increasing difficulties of obtaining N.C.O.'s, the limited area of choice, and contrasting the situation with that of the German Army. "The Officers of the Marines," complaining of the unpopularity of sea service. "The Difficulties before us in Madagascar;" Cosserson de Villenoisey reminds the younger generation of Crimean experiences, and does not prophesy smooth things. "The Soldier's Meat Ration;" more revelations. "The Case of Captain Dreyfus." "Remarks on the Annual Course of Musketry in the 12th Corps by the General Officer commanding the Corps." 27th November. "The Case of Captain Romani." Captain Romani was arrested by Italian gendarmes close to the French frontier; he was in uniform, and says that he lost his way, yet he was charged with being a spy; under the circumstances, we do not wonder at the French being a good deal annoyed. "The Credits for the Expedition to Madagascar;" a sensible, temperate article worth reading. "The Case of Captain Dreyfus." "Death Sentences in the Army," *à propos* of the recent execution of a soldier at Naples, and the effect from a disciplinary point of view in the Italian Army. This month's issue is of exceptional interest in many respects, and if the impression derived from its perusal is pessimistic, it cannot be denied that the bulk of the articles are written by trained soldiers, who know what they are talking about, and put things in a practical way.

*Revue d'Artillerie*.—November. "Distribution of Deformations in Metals under Strains and Compression, Torsion, Shearing," with plates. "The Resistance of the Air at High Velocities." "The Influence of the Pitch of the Screw-threads in Breech-closing Apparatus." Notes, &c.

*Revue du Cercle Militaire*.—No. 44. "Military Education in Germany." "Range-finders" (conclusion). "Recruiting of Reserve Officers in Italy." No. 45. "Infantry Tactics," reprint of lectures by Colonel Odon to officers in garrison at Clermont Ferrand. "Proposed New Law on the Recruiting of the Italian Army." No. 46. "Study of the Cossack 'Lava' by an English Officer," from the Russian review of Colonel Neville's Simla paper. The French paper says that "our Indian cavalry are only Cossacks, after all; but we fancy he has never seen either. "Infantry Cadres in France and Spain." No. 47. "Electric Projectors and their Employment in War." "The Penetration of Modern Rifles."

*Revue Militaire de l'Étranger*.—November. "The Position of N.C.O.'s in the German Army and their Supply." "The Organization of the Military Forces of the Turkish Empire."

*Revue du Génie Militaire*. No. 4. "The Engineers in Dahomey," interesting to explorers. "Travellers' Reconnaissances."

*Revue du Cavalier*.—November (received 12th December). "Lettres d'un Cavalier," second part, No. 1. "The Preparation of the Recruit;" these letters are about the most readable and the soundest we have seen in French military publications for the past 10 years. "The Italian Cavalry." "Losses of Horses in War;" *précis* and commentary on Veterinary-Captain Smith's paper in the March number of this journal. "The Mobilization of Two Regiments of Reserve

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Cavalry." "Racing in the Army." "The Promotion of Lieutenants and the Cavalry School at Saumur." "Passage of Rivers in the Russian Cavalry." "Leçons de Chic:" par une Sabretache; an amusing and instructive article on uniform and how to wear it, with little sketches which remind one of Carand'asche.

**Germany.**—*Militär-Wochenblatt*.—No. 93. "The Imperial Manœuvres" (continued). "The Training of African Troops," Major Wissmann; very practical, and full of common sense. "Tactics, and the Combined Action of the Three Arms," review of articles in the French "Revue de Cavalerie," generally attributed to Gallifet—certainly in harmony with the views he is known to hold. No. 94. "Treatment of the East African Native," by Major Wissmann, who says, "No training is better calculated to make a man a good leader and educator of Africans than the training of the drill-ground. The man who has learnt to control his temper, in face of the constant worries and annoyances provided for him by the stupidity and clumsiness of the average recruit, can control himself anywhere," and we believe him. "Notes on the Artillery at the Manœuvres," full of practical hints. To bring large masses into action requires practice, and the troops must be able to maintain a pace of 6,000 yds. trot and 1,000 walk successively for many miles. "The Results obtained by the French Studs in 1893," very satisfactory. No. 95. "Review of the Life of General Grolman." "Umpires and the Field Artillery at Manœuvres," very practical; should be read. No. 96. "The Battle of Beaune-la-Rolande," a study of Hoenig's well-known book. "The Duties of the European Officer in Africa," Major Wissmann; again very practical, but some ideas read curiously to English eyes: "For the same reason that the captain of a man-of-war lives in seclusion from his officers, the leader of an African expedition should seclude himself, however great his craving for companionship may be." The Major justifies this opinion with reasons of considerable weight. No. 97. "What Services to Science can the Officer in the Colonies render?" Major Wissmann; read. "Report of the Operations under Major Leutwein against the Witboois." No. 98. "Life of Field-Marshal Gneisenau," review of second corrected edition of Hans Delbruck's work. The book should be interesting to students of the Waterloo campaign, Professor Delbruck being well known for his antipathy to the Duke of Wellington. "The French Manœuvres," criticisms extracted from the "Avenir Militaire," should be read. No. 99. "The Instruction of Infantry in Barracks." Owing to spread of Socialism amongst the reserves, which, however, is not as serious as the author imagines, officers should lecture and catechise their men on the duties of a soldier from a moral point of view; from specimens the writer gives, we think the chaplain could do it better. "African Sport," Major Wissmann. No. 100. "Mounted Orderlies."

*Deutsche Heeres Zeitung*.—No. 88. "The Strategy of the Future." The problem before the modern General is to find the most effective compromise between numbers and mobility; gives interesting summary of the views of French writers, and discusses the attempt made by Major Montéchant to compare the fighting value of a fleet with that of a land force. Neither the major nor the editor appear to know much about naval matters, but the idea is ingenious and the article deserves reading. "The Engagement at Ladon and Maizières, 24th Nov., 1870," by Captain Hoenig (continued). No. 89. "The Emperor Alexander III." "The Action at Ladon and Maizières" (continued). No. 90. "Horses and Horse-shoes," nothing original. No. 91. "The French Manœuvres," from "L'Avenir Militaire," with comments, worth reading. "Modern Reserves." No. 92. "The N.C.O. Question in France," worth reading. "Modern Reserves." Nos. 93 and 94. "The New French Infantry Regulations," summary of change introduced. No. 95. "More about the Battle of the Yalu." "Modern Reserves;" these letters on reserves are long and rambling, but contain many suggestive ideas.

*Jahrbücher für die Deutsche Armee und Marine*.—December. "Leading Points to be observed in the Training of our Infantry," by von Blanker (Lieut.-Col. v. D.). A powerful appeal to the officers to raise themselves morally, the better to inspire confidence in their men and counteract the growing influence of Social Democracy.

"The Russian Cavalry in the Campaign of 1877-78, and its Mission in Future Wars," worth reading; difficulty of remounting the cavalry is growing, and the horses of the line cavalry leave much to be desired. "Improvised Fortifications," by Rheinold Wagner (Lieut.-Col. v. D.). "The Reforms in the Russian Engineer Corps," summary of progress in military inventions and manufactures. Book Notices. Summary of current military literature, &c.

**Switzerland.**—*Revue Militaire Suisse*.—No. 11. "The Manœuvres of the IVth Corps." "Federal and Cantonal Rifle Matches," mathematical investigation on the point of mean impact of a group of shots as a means of judging the accuracy of an individual's shooting. "Food and Hygiene of the Troop Horse on Service."

**United States.**—*The United Service*.—December. "Interior Waterways from New York to the Gulf Coast," S. Millington Miller. "Rural Traditions," Burnet Landreth. "Lord Wolseley's 'Marlborough,'" favourable review. "Origin and Development of Steam Navigation," by the late Rear-Admiral H. Preble, U.S.N.; useful notes on performances of different steamers. Book reviews, Notes, &c.

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## NOTICES OF BOOKS.

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*L'Empire Libéral: Études, Récits, Souvenirs.* Par ÉMILE OLLIVIER. Tome Premier. Du Principe des Nationalités. Paris: Garnier Frères, 6 Rue des Saints-Pères. Price 4s.

This is a very remarkable work. The position of responsibility the author occupied during the Second Empire is sufficient guarantee of its importance. Seven volumes of it are promised us, and though the prospective path is both long and weary, the grace and finish of the author's style has so far straightened out the curves and softened the rigidity of the gradients that we can face our task with resignation, if not with cheerfulness.

His ultimate object, according to the introduction, is to prove that in 1870 "France was no more the aggressor against Prussia than in 1792 or 1806." If that was all, he might have left the work unwritten, for no one ever supposed that she was.

The conclusion we wish to draw is a different one. The point of the French Revolution he wishes to prove is "égalité, fraternité et liberté." If we accept the old saying on the subject, then we can follow him—"Liberté," de mourir; "égalité," dans la misère; "fraternité," dans la mort. That is truth, brutal if you will, but "truth." Still, that is not his theme, nor is it the point which appeals to us.

It was something to make the discovery that human beings were human beings, but that discovery had been made in England five centuries before, and long before this faith dawned on revolutionary France we had begun to differentiate, and had realized that, though a bulldog was a dog and a greyhound a dog, yet there was a marked difference between the two species. The battlefields of the Peninsula proved this, to those who had eyes to see, but still a vast majority of human beings in our own country, and in others, failed to grasp the significance of the fact, because they were lacking in the all-round experience of different races which the average British subaltern enjoys, but the average civilian would not, and did not, hesitate to claim kinship with a negro—when it served his political purposes, *bien entendu*.

This brings us down to Darwinism pure and simple. We all evolve along the same plane, but in different directions. A greyhound, as a dog, is as good as a bulldog, but their mental spheres are essentially different, and we leave it to judges to decide which is the better animal.

Now this book differentiates for us between two types of the human race, as far apart in characteristics as the two species of hounds which we have taken as our type, and the lessons to be derived therefrom are manifold. No one who has seen a greyhound fight will deny his courage, or the terrible power of injury that his jaws include. He is crossed with the bulldog, and that explains his pluck, and makes the parallel more complete; where he derives his lightning-like activity we do not know, but perhaps some expert can enlighten us.

If the bulldog had intelligence, he would study his adversary's character, and make up for his slowness by a knowledge of the other's weakness, and this is why we should study works of this description to the utmost possible extent. From them we can learn where and how the other side means to strike, and take our precautions accordingly; but this is precisely what we, going on the *liberté-égalité* system, have systematically forgotten to do.

We have hitherto reasoned that because, from our point of view, the enemy, being our equals in intelligence, must clearly see that an attack on us can only result in the loss of its colonies and commerce, therefore the enemy will see that too, and refrain from attacking us.

But the enemy, though our equals in courage, does not look on it in that way at all; they reason like the greyhound, viz., that with my superior speed I can seize you just behind the forearm, and with my terrible jaws paralyze the life in you, before you can fairly get under way, and the calculation is a reasonable one.

The whole of this work proves that this was the French point of view, and presumably still is so, for human nature changes slowly. Though for the whole of the time from 1815 till 1840, by the light of the struggle for sea power between the two rivals, it is safe to predict that war between England and France meant the absolute ruin of the latter, for Trafalgar had proved the point—the idea had evidently never entered the French statesmen's heads, for again and again they threatened us with war if we attempted to hinder their expansion. "*La France s'en f— de l'Angleterre*," as one of their Ambassadors delicately expressed himself to his British colleague.

Whether we had as a fact forgotten, or never learnt, the lesson of our great fight for maritime supremacy, may be read between the lines of our author; from the extracts from the letters and memoirs of well-known British statesmen which he gives us, it seems to us at least doubtful. And we are inclined to believe that, however evident the matter may have appeared to our Admiralty, to our statesmen the lesson of Trafalgar was at least as hidden as it was to the rest of Europe.

Our purpose in drawing attention to this book is, briefly, this:—

Peace, absolute and unassailable, is our greatest need, and that peace can only be assured by the maintenance of our unchallengeable maritime supremacy. Nothing less than this can maintain it, for here we see it written large, with all the weight that the opinion of a responsible statesman of M. Ollivier's order can give it, that the lesson of Trafalgar has not been learnt, and that war may be declared on us, though the chances of success are infinitesimal.

We do not want war—even victorious war—for the consequences would be to put back the clock of civilization by one hundred years at least. But war does not depend on what we know, but on what the other party to it thinks—and what that party may think these memoirs help us to elucidate.

As regards the impartiality of the writer and his competence, the following points deserve attention. Speaking of Bismarck's responsibility for the war of 1870, he quotes speeches at Jena and Kissingen, in 1892, in which Bismarck distinctly claims to have manipulated the telegram on which peace or war depended. According to Bismarck, Moltke, on seeing the revised telegram, said, "Why, before it was a *chamade*, you have made it a *fanfare*." Sir Beauchamp Walker's memoirs, noted above, show that it was Moltke, not Bismarck, who wanted the war; and Caprivi, in one of his speeches before the Reichstag on the Military Bill, about November, 1892, in order to disprove Bismarck's assertion, produced the original

telegram from the war archives, and proved conclusively that it had not been tampered with at all. We were present, and shall never forget the scene.

As a further test of the author's accuracy, we may mention that almost every German word or name is misspelt throughout—Pultkammer for Pultkammer, Burschensafften for Burschenschaft, Goettingue for Göttingen, &c., &c. The best book to read as a corrective is "Metternich's Memoirs."

*Strategische Briefe.* By Prince KRAFT VON HOHENLOHE-NIGELFINGEN. Berlin: Mittler. 2 vols., with maps. Price 20s.

Now that Hamley's "Operations of War" is no longer given as a text-book for the entrance examination to the Staff College, the student will be compelled to look elsewhere for guidance in his purpose, and no better work than the one whose title heads this article can be recommended to him. Hohenlohe discusses his subject in his usual clear and genial way, pointing out the practical difficulties that arise in the execution of even the simplest movement where great responsibilities and large numbers are involved. The plan of the book is to take the three campaigns of Jena, Solferino, and Sedan, and to show the gradual evolution of modern strategy and its methods, proceeding by gradual decentralization, becoming more and more pronounced as the numbers increase. In 1806 he shows us that the cause of defeat lay in the extreme centralization of the Prussians—a consequence of the all-pervading genius and activity of Frederic the Great, which had paralyzed all his subordinate commanders, and thus left no one able to take up his post when he died. The French, on the other hand, were then relatively decentralized, as they acquired that vice at a later period, when the energy and personal ambition due to the Revolution had been blighted by the despotism of the Empire—a point to which Thiers never alludes, nor anyone else out of Germany to our knowledge.

In 1859, though centralization was rife in both armies, it was least in the French and greatest with the Austrians, with the usual consequences. In 1870 it was again superior decentralization on the German side, combined with the previous training of the staff and leaders, which alone could justify it, that gave the Germans their victories; and the conclusion is not far to seek, that in the future that army will inevitably win in which the system of decentralization has been pushed just as far as the numbers employed and the average intelligence of all ranks will allow. That is to say, at any given moment, with troops of given quality, there is an inferior limit beyond which it would be dangerous to go. No two better books than this and Von der Goltz's "Nation in Arms" could be recommended to supplement a long course of Hamley. The latter may be an excellent study for men already so familiarized with practical warfare as to be able to apply the necessary corrections at every page for influence of weather, armament, organization, &c., on the opposing forces, to whom, by the way, no study would be necessary, as they would be already past masters in the art; but to the average soldier Hamley appears to us to be about as dangerous as a course of pure mathematics, if taught without reference to the strength of materials, to the young engineer; indeed more so, for pure mathematics are at least truth and sound reasoning, whereas Hamley is often only garbled history and incorrect logic. Moreover, his method rests on a fallacy common to him and all his school, viz., that strategy can be judged good or bad absolutely, and is not only relatively so to the qualities of the troops engaged. The fallacy is obvious, however, when looked at the proper way. Thus, in 1806, Napoleon's strategy is praised, and that of the Prussians ridiculed. Now, supposing that a tactical victory had been gained by the Prussians, and their right hurled across the French line of retreat, cutting Napoleon off from his base and jamming him against the barren and roadless Bohemian mountains, the situation of the French would have been worse than that of the Prussians actually was. The Prussian strategy would have been then just as much exalted by critics of the Hamleyian school as it is now ridiculed. Or, to place the matter still clearer, assume the Germans round Metz in the position actually occupied on the 20th August, and with all their advantages of discipline and organization, but without any weapons. How long would the perfection of

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their strategical arrangements have kept the French from breaking through? This of course is an extreme argument, but we can differentiate upwards by steps for every little increment of armament till the fighting force of each was exactly balanced. Till that point is reached, the German strategy would be bad and the French good, but once the fighting power of the Germans overtopped that of the French, the German strategy becomes good and the French bad. It is because the healthy instinct of the young untutored subaltern detects this latent fallacy, though he may not be able to explain it, that so little interest can be evoked by military history on the conventional lines.

Under the old system of Cabinet wars it was the custom of contending Governments to endeavour to gain their object with the minimum expenditure of money, which meant men. If, through the medium of spies, it leaked out that one side proposed to put in 30,000 men, the Cabinet looked about for a General who would contract to beat them with 32,000 or less, the rule of the lowest tender being strictly observed. Such things have been done by Cabinets nearer home than India, and twice within the last 30 years, if report speaks true. The troops being for the most part mercenaries singularly equal in armament and tactics, when the two sides met a deadlock ensued, and the game of manœuvring began. Now, two men are rarely absolutely equal, one leader was sure to have a little more energy or sense than his opponent, and unconsciously, perhaps, the better man made better use of his time and infused more of his spirit into the men, and hence, when at last a collision occurred, as a consequence of manœuvring, the better General's troops secured the advantage. Sometimes good troops, more consolidated by nationality—as our own, for instance—cut even a bad General out of his difficulties, and hence ensued confusion in the mind of the beaten General who could not reasonably be expected to admit his own inferiority to his opponent. It never, for instance, entered the head of Soubise at Roszbach that though it was a very safe game for Frederic, who had trained and disciplined his troops to be reliable tools in his hand, to march round his enemies' flanks, it was a very unsafe game for Soubise with his untrained rabble, the cause of whose want of training he never probably fathomed, to attempt the same manœuvre against his more energetic and more capable enemy. Though this is, of course, again an extreme instance, it is obvious that the more closely the two leaders approximated to one another the more probable it would become that they should miss the true explanation. Hence, too, it happened that the application of the term "strategy"—which, after all, means literally the art of the General—became limited in its application to skill in manœuvre, and its full sense, which includes both the preparation of the troops for war, their organization, specially the perfecting of the staff, whose purpose it is to minimize friction in its moving parts, passed into oblivion, until dug out by Clausewitz and popularized by Hohenlohe and Von der Goltz.

*Oliver Cromwell.* A history by SAMUEL HARDEN CHURCH. London and New York: G. P. Putnam's. 1894. Price 12s. 6d.

This book is written in a clear and attractive style, and the author seems to us to have caught in part the keynote of the old Puritan character; indeed, had we not only the other day completed the study of Hoenig's work on the same subject, we should have been prepared to praise it unreservedly. But after Hoenig such a course is impossible. Cromwell was before all things a soldier, and a life of him which leaves out the most essential features of his activity in this field is worse than Hamlet with the title-rôle omitted. It is true that Mr. Church gives us descriptions of Naseby, Marston Moor, &c., but he does not in any way connect these incidents with their strategical surroundings, and his style of description reminds us too closely of Thackeray in his immortal "Rose and the Ring." What we most like about the book is his vindication of Cromwell on the charge of unnecessary cruelty. Cromwell was no butcher at heart; but he fully understood that war is not a game to be played with velvet gloves, and that moral effect is its most powerful agent. The intensity of the loss inflicted at any particular point of the theatre of war is the fact that demoralises and spreads terror into the ranks of the enemy, thereby compelling him to submit in less time and at a far less collective

cost of human life and suffering than a more dilatory prosecution of military operations would entail. "The submission of the enemy to our will is the ultimate purpose of all military operations," and it is precisely because Cromwell so completely grasped the full logical consequences in that simple phrase that soldiers of all nations hold him in such high estimation as a leader of the very first order.

*The Life and Inventions of Thomas Alva Edison.* By W. K. L. DICKSON and ANTONIA DICKSON. London: Chatto and Windus. Price 18s.

Though terribly handicapped by its illustrations, and the "Telegraphese" nature of the style in which it is written, this is nevertheless an exceedingly interesting and instructive work. It should be very interesting to those who lack time and preliminary training to follow up the progress of electrical science. Electricity is as yet only in its childhood. What the next 20 years may have in store for us exceeds the limits of our gifts of prophecy, and the study of this book may save many from the financial disappointment which too often follows those who without adequate training invest their money on the advice of others as ignorant as themselves.

*The Horse: Its External and Internal Organization.* By A. SCHWARZ. Revised and edited by GEORGE FLEMING, C.B., late Principal Veterinary Surgeon of the British Army. London: Phillip and Son. Price 3s. 6d.

This little work consists essentially of a series of folding diagrams, illustrating the exterior and interior conformation of the horse, and should be exceedingly useful to all young officers. Mr. Fleming's name is sufficient guarantee of its reliability. We only regret that a series of instantaneous illustrations, showing the mechanism of the different paces of the animal, have not been added.

*The Command of the Sea.* By SPENSER WILKINSON. Westminster: Constable and Co. 1894. Price 1s.

These letters appeared originally in the "Pall Mall Gazette," to which paper the most cordial thanks of the nation are due for the zeal with which it has propagated sound and practical ideas on the great question of the day—viz., the management of our maritime supremacy. Mr. Wilkinson treats the subject with a clearness and grasp almost above praise; within 100 brief pages he condenses all that the average citizen requires to enable him to form a reasonable judgment on the needs of our navy to maintain that command of the sea on which, as he clearly shows, our very existence now depends. More than this, he comes forward with a distinct and practical suggestion which, if adopted by the nation, will ensure the provision of a fleet and army competent to fulfil the duties for which they exist. Briefly, his proposal is this: "The Government must find and appoint two war directors, one for the navy, one for the army, and each of them should be called on to submit every year his specification of the navy or army he would require to beat our possible enemies." The intention being to localize in this manner the responsibility definitely, so that it can be traced, and, in case of dispute, the nation should be able to ascertain the exact degree of responsibility attaching to the Government or its advisers. This idea, if accepted, would, at any rate, be an immense improvement on the existing system, or rather want of system; and as long as the nation remains alive to its needs it may be expected to work reasonably, but if once public attention was withdrawn from the subject a consequence would ensue which appears to us to be inevitable. Government, with the fear of the elector no longer before its eyes, would proceed to put up the control of the Services to the lowest tender, and those officers would be appointed who undertook to guarantee the security of the Empire at the lowest possible cost. It would be the business of the press to see that this state of somnolence did not overtake the enemy, and, doubtless, that is the view that a journalist would adopt, but this is a point on which each can form his own opinion, and we have fulfilled our duty in calling attention to it.

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*Labour and the Popular Welfare.* By H. MALLOCK. London: Adam and Charles Black. 1894. Price 1s.

In this little book, Mr. Mallock sets forth with exceptional clearness the causes on which our national prosperity depend. Without technicalities or abstruse verbiage of any sort, he traces step by step the evolution of our present wealth and the internal conditions on which its progress along the same lines can be insured.

The essential point he makes is briefly this: The causes of production are not three, as generally stated (viz., Land, Labour, and Capital), but four (viz., Land, Labour, Capital, and "Ability"), the fourth being the sole source of that increase in production which is the distinguishing feature of modern industrial progress. The introduction of this fourth factor clears the ground for the student of political economy in the most remarkable manner. Where, under the old three-factor system, it was impossible to see one's way through the tangle of actual facts as we find them in practice, one can now move surely ahead, testing the incidence of taxation and expenditure, and predicting its consequences with a certainty hitherto unattainable.

It may be said that these things do not concern the Services. Perhaps they do not, as regards the junior officers on the Active List, but to the enormous numbers of retired officers, or men in civil employ in India or the Colonies, a knowledge of the facts herein set forth is of the utmost consequence, if only to prevent mistakes in the organization of philanthropic schemes for the benefit of our Reserve men, our soldiers' children, &c.

We must also not lose sight of the fact that in England a soldier loses none of his civil rights as a citizen, and in case of tumult or disturbance he is compelled by civil law to accept the consequences of his own acts, whether he acted in accordance with his orders or not.

Now, in dealing with strikes and evictions, the sight of the sufferings of the people is apt to exert a very considerable influence on the judgment of the men charged with the execution of these painful duties, and the best means of ensuring oneself against the incidence of these sights is the knowledge founded on study and reflection that the existing law is actually framed on principles of justice and equity, and that the best security for our national prosperity lies in its maintenance, notwithstanding the local suffering to which its enforcement may give rise.

On one point only do we join issue with Mr. Mallock. Taking the whole income of the country, he shows us what labour, unaided by ability, could have produced, and he assigns the whole of the balance as the product of ability; but this is obviously incorrect, for ability without the markets for produce and the security afforded to our traders by our maritime supremacy would never have had the opportunity of exerting itself at all. It would be far nearer to the truth to credit the whole balance he alleges to have been produced by ability to Nelson and the navy; for had we fallen like Germany under the Napoleonic yoke, not all the ability in the world, using the term in the sense he appears to use it, would have saved us. Possibly we may have misunderstood him, and his definition may be taken to include the power of command in the leaders and the tenacity of will in the men which ensured our victory, but that is not the impression his work leaves upon our mind.

*Days of a Soldier's Life.* Being Letters written by Sir C. P. BEAUCHAMP WALKER, K.C.B. Chapman and Hall, London. Price 18s.

The editor of this book has unfortunately omitted to state to whom these letters were written. From the book itself we deduce that they were intended for home consumption only, for we have derived far more information about the General's wants and necessities, the sufferings of his servants and horses, &c., than about the tactical problems on which we hoped to find some fresh light.

We can only hope that this is only a first instalment of the General's papers, and that subsequently we may be supplied with the more technical information which he, more than any other officer of recent years, could have supplied us

with. Perhaps one other man—the late Colonel C. B. Brackenbury—enjoyed equal opportunities, but his appreciation of events are less useful to the average student, because he belonged to a decentralized regiment analogous in principle of organization to the German army, and therefore was inclined to under-estimate the difficulties which stood in our way in assimilating the true teaching of the wars which both he and Sir Beauchamp had the opportunity of observing. There are three points on which the General's experience might have shed useful light: First, Why was the British Staff inefficient in 1854? Second, Why was the German Staff efficient in 1870? Third, Was the actual strain of battle on the men engaged greater in 1854 than in 1870? These data, given by a man of his position, would suffice to settle two-thirds of the vexed questions of tactics and organization, and we still hope that we may obtain them. The last of the three is partly answered for us already. Speaking of the Bohemian campaign, the General says that the field of Sadowa, though an awful sight, was nevertheless far less terrible than fields he had already witnessed—presumably referring to his Crimean, Indian, and Chinese experiences. Now, the local slaughter of the Austrians at Koeniggratz was heavier than anything that occurred in 1870, except possibly Vionville and St. Privat, neither of which he saw; therefore it is a fair deduction that the immediate strain on the men in both campaigns must have been less than in either the Crimea or the Mutiny. If that was the case, what becomes of the terrible power of the breech-loader, in deference to which we emasculated our old traditional method of fighting?

One last point deserves mention. In this Journal, dated 3rd October, 1871, he states, on the authority of Graf Eulenburg, that on the 12th of July, 1870, it was Moltke who urged that there never was a better opportunity for war. This is very important, and we should like better authority before accepting the statement, for even the most discreet of men, as Eulenburg certainly was or is, sometimes make assertions in casual conversation which they would scarcely care to swear to in a court of law—not out of malice, but by inadvertence. Still, if this statement is correct, it is of supreme value for forming an opinion of Moltke, because not only did the facts prove that he was mistaken, but if he really thought no better opportunity could arise in the near future he must have been ignorant of the evolutionary forces then at work in the Prussian army itself, to say nothing of the southern States. Three years more would have afforded time for the reforms instituted in cavalry by Prince Frederick Charles and in the artillery by Von Hindersin to have borne full fruit; three years would have sufficed to rearm the infantry, and to get rid of the old battalion column of attack, and no reform conceivable in the then state of the French army could have restored the equilibrium. As it was, the Prussians took the field, relying on the support of contingents almost entirely untrained, with a most inefficient cavalry, *teste* the day of Vionville, with the worst infantry weapon in Europe, and with gunners of whom barely one-third had been trained to shoot. Yet they won; because decentralization, acting over a long period of years, had given them an exceptional percentage of officers, both on the Staff and in their regiments, trained to accept the responsibility of their own actions.

*L'Armée sous la Révolution, 1789-1794.* Par ERNEST D'HAUTERIVE. Paris: Ollendorff, 1894. Price 5s.

M. d'Hauterive has provided us with a hitherto unwritten chapter in the evolutionary history of tactics of the greatest possible interest. Three problems are always confronted the military student of the Revolution, viz.: How did the Royal army of France lose its discipline and become the tool of the Jacobins? Whence came the fighting power which enabled the Republic to victoriously repel the Allies in the Netherlands and on the Rhine? How did the rabble who ran at the sight of a few hussars in 1792-93 gradually settle down into the best and most accomplished light infantry in Europe, with the exception of our own light division only?

M. d'Hauterive shows us that the methods of the revolutionaries to corrupt the army were in the main the same as they have ever been and still are, viz.,

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to sow distrust between the officers and the men; and their task was immensely facilitated by the over-centralization of the old army, acting through a long series of years. Chronic warfare and long service tends to decentralization and the eventual growth of a fighting force inferior to none; but long service and chronic peace inevitably tend to over-centralization and the gradual divorce of officers from their men—when the work of the agitator becomes easy. Corruption and nepotism of course did their work, but these would not have sufficed had not the other cause coexisted. The admirable conduct of the bulk of the officers who remained true to their duty after the first emigration, and the splendid soldierly qualities displayed by the ultimate survivors during the Napoleonic epoch, afford the proof of our contention.

The actual fighting on the frontiers in 1792-93 was not done by the volunteers, but by the remnant of the old army. As a body, the volunteers were a worse danger to their own country than to the enemy, but their composition was uneven, and, in face of the foe, a weeding out by the process of natural selection took place. The best elements aggregated round the old cadres, the bravest men came to the front, and by the time Napoleon arrived to lead them discipline had reasserted itself, and the army was ready to become a reliable tool in his hands.

This point is worth dwelling on, for it is the fact that Napoleon, himself unequalled as a soldier in all other respects, showed little taste or talent for tactics, or for the comprehension of the methods on which the training and discipline of men ultimately depends. Given trained soldiers, he could enthuse his own spirit into them, and lead them on the battlefield as no other man either before or since; but for the routine work which goes to the making of the soldier his correspondence shows he had little sympathy or understanding; this part of the work he left to others, who did not always serve him satisfactorily.

One other point deserves special attention, namely, the magnificent spirit of devotion to their country, unstained by any suspicion of self-interest, which M. d'Hauterive proves to have existed amongst the French officers as a body. France may well be proud of the traditions of her officers, and it is a safe prediction to venture that if difficulties and dangers enclose her once again it will be from the men descended from the old fighting families of the last century, and not from those of the professional politician, that her deliverer will appear.

*Letters from Camp during the Siege of Sebastopol.* By Lieut.-Colonel COLIN FREDERIC CAMPBELL. London: Bentley and Sons. 1894. Price 7s. 6d.

This book deserves careful study. Few modern English writers have shown a more correct judgment or a wider grasp of facts. It is impossible to analyse it closely in the space at our disposal, or to sift the objective assertions of the author into their correct places in the picture of objective truth: indeed, the time has even yet hardly come for such an undertaking; we still require many more works of a similar nature, but confess that we hardly expect to see many, of similar merit at least, within the allotted span of our lifetime.

The essential lessons we gather from its perusal are, indeed, as old as the hills, but experience shows that they cannot be too often insisted on. Concentration of artillery fire on the decisive point; assault before the effect of the fire has had time to wear off; supports constantly led in at the psychological moment; and finally, the ruin of the offensive spirit of the men which a long course of fighting under cover entails. Surely these ideas are simple enough, and could be learnt by heart by any one of average intelligence; they have been known, in theory at least, for the last two centuries, and more than one great leader has demonstrated their value in practice, yet, without one single exception that we can recall, every defeat suffered in the open field, where the opposing forces were in any degree fairly matched, has been due to the neglect of some one or all of these very simple factors. How can we account for this? We confess the answer lies beyond us. Will it be so in the next war? We do not think so, but the real answer depends on the causes one assigns for the original error: a problem worth thinking over any way.

*Mancœuvre du Service de Santé de l'Avant dans la Prochaine Guerre.* Par E. GAVOY, Médecin Principal de 2e Classe. Paris: Charles Lavauzelle. Price 2s. 6d.

This is a useful little book, which should be well worth the while of some officer of the Medical Staff to translate. In a series of examples, with plates, the author shows how the different échelons of the ambulance service should be disposed to meet the exigencies of the various types of encounter which occur in the field. As he had considerable experience in 1870, it is not pure theory that he gives us, and his practicable common sense is shown in the fact that he nowhere goes into hysterics over the numbers of the wounded to be dealt with in coming campaigns as a consequence of the improved weapons. He, almost alone amongst modern writers, appears to have realized that the percentages of wounded are conditioned by the quality of the troops and not by the nature of their armament.

*The British Fleet: the Growth, Achievements, and Duties of the Navy of the Empire.* Commander C. N. ROBINSON, R.N. 1 vol. London: G. Bell and Sons. 1894.

Commander Robinson has done good service in compiling the little work before us, and has succeeded in filling a blank which, up to the present, has undoubtedly existed in our naval literature. In the first of the four sections into which the book is divided, the author, in a comparatively small compass, traces the rise and growth of our naval power, and shows in a concise and readable form the work the navy would have to perform in the protection of our vast trade and in keeping open our communications with India and the Colonies in time of war, with a short description of the multifarious duties, from the suppression of the slave trade to Arctic and Antarctic exploration, which has fallen to the lot of our sailors in the piping times of peace; and he concludes this section with an interesting account of flags and signals, the history and development of the present Union Jack being carefully traced. The second section is devoted to naval administration, and contains a good deal of useful information as to the constitution and evolution of the present Admiralty Board from the time when, under the title of "Guardians of the Seas," certain officers, in the reign of Henry I, were delegated to control all matters relating to the King's ships; then follow details relating to the "Equipment, Management, and Victualling" of the fleet, and this section is brought to a close by three chapters, all worth reading, on the Admiralty buildings, the laws and customs of the navy, and naval nomenclature. In Part III, Commander Robinson traces the development of war-ships, from the galleys of the Romans to the "long ships" or "ceols" of the Saxons and Danes, which, in their turn, gradually grew and were improved upon until, in Henry V's reign, we first hear of what were called "great or tall ships," tall-sided vessels more efficiently rigged for sailing; in Henry VII's reign the "Great Harry" was built, followed in the succeeding reign by the "Harry Grace à Dieu," the first ship built with portholes in our navy; she was a two-decker, and carried 14 heavy guns on the lower-deck (the largest being 60-pr.), 12 on the main-deck, 18 lighter guns on the quarter-deck and poop, 18 on the forecastle, and 10 for firing astern. The building of the "Harry Grace à Dieu" marks a distinct epoch in our naval construction, and in chapters 2 and 3 of this section of his work, the author, entering more into detail, shows the gradual evolution of the modern line-of-battle ship from the ship of that period; concluding with a short description of the navy of to-day, its armament and steam power. Part IV is the largest section of the book, and to many readers it will prove the most interesting—devoted, as it is, to the personnel of the navy, both officers and men; and Captain Robinson must certainly be congratulated on the many curious and interesting facts connected with the officering and manning of the fleet in the old days which he has collected and given us on these subjects; the chapter on naval costume also contains much matter which is probably new, even to the bulk of naval officers. We cannot conclude this notice without some mention of the number of excellent engravings with which the work is illustrated: many of them are unique, and in a voluminous appendix the author tells us the sources from which his illus-

trations are drawn, and of those artists who are more particularly known for their delineation of naval life and manners.

Captain Robinson must certainly have devoted a great deal of time and labour to the collection of the necessary material for his work, necessitating, as it has done, the hunting up and diving into of a mass of old documents, &c., bearing on his subject, and we hope that his book will in particular attract the attention of that large number of our countrymen who, unfortunately, are totally ignorant of naval matters, and will lead them to take some interest in that navy through which the creation of our vast Empire has alone been possible, and by which its integrity in the future, as it has been in the past, can alone be secured, and that they will realize the full meaning of that pregnant sentence, which now, for 500 years, has formed the preamble of the Naval Discipline Acts: "That it is the navy whereon, under the providence of God, the wealth, safety, and strength of the kingdom chiefly depend."

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## INDEX TO SUBJECTS.

## VOL. XXXVIII.

Subject.	Names of Authors, Translators, and those taking part in Discussions.	Page
ACTION of Cavalry and Horse Artillery, The, illustrated by Modern Battles.	MAY, MAJOR E. S., R.A. ...	1
ADMIRALTY Badges, Origin and History of the. <i>See</i> Origin.	... ..	
ADMIRALTY Flag, The ... ..	BLOMFIELD, REAR-ADMIRAL, R.M.	1385
AGORDAT, The Italian Operations at, in the Eastern Sudan: Notes and Documents by General E. Arimondi. <i>See</i> Italian.	... ..	
ANNUAL Reports on the Changes and Progress in Military Matters during 1893. <i>See</i> v. Löbell.	... ..	
ARMOUR-PLATE Trials at Pola, Austria ... ..	... ..	445
ARMY Regulations and Instructions in Force on the 1st January, 1894, List of. <i>See</i> List.	... ..	
ART of Breathing, The, as applied to Physical Development ( <i>Lecture</i> ).	DIXON, A. L. HOPER, SURGEON-CAPTAIN, A.M.S.	641
	<i>Discussion—</i>	
	Fielding, General the Hon. W. H.	648
	Jameson, Surgeon-Major-General	649
	Barnard, Mr. A. ... ..	650
	O'Callaghan, Captain ... ..	651
	Deane, Surgeon-Captain, Medical Staff.	652
	Browne, Mr. Lennox (Chairman).	653
ATTACK or Defence, Strategically and Tactically Considered ( <i>Lecture</i> ). VOL. XXXVIII.	MAUDE, CAPTAIN, late R.E. ...	805

Subject.	Names of Authors, Translators, and those taking part in Discussions.	Page
	<i>Discussion—</i>	
	Hale, Colonel Lonsdale, late R.E.	819
	James, Captain W. H., late R.E.	822
	Henderson, Lieutenant-Colonel G. F. R.	823
	Dooner, Colonel ... ..	824
	Trotter, Colonel ... ..	825
	Simmons, Field-Marshal Sir J. Lintorn A., G.C.B., G.C.M.G. (Chairman).	827
BOOKS, List of Recent Foreign. <i>See Foreign Books.</i>	.. .. .	...
BREATHING, The Art of, as applied to Physical Development ( <i>Lecture</i> ). <i>See Art.</i>	... ..	...
BULLET, The Krnka-Hebler. <i>See Krnka.</i>	... ..	...
CAMP, A Volunteer Brigade. <i>See Volunteer.</i>	... ..	...
CAMPAIGNS of Saxe, The ... ..	LLOYD, LIEUT.-COLONEL E. M., late R.E.	1247
CAVALRY and Horse Artillery, The Action of, illustrated by Modern Battles. <i>See Action.</i>	... ..	...
CAVALRY, Machine Guns with ( <i>Lecture</i> ). <i>See Machine.</i>	.. .. .	...
COAST Defence, Electric Light Projectors for. (Translated from the "Rivista Marittima" for January, 1894.) <i>See Electric.</i>	... ..	...
COAST Defence, Some Aspects of ( <i>Lecture</i> ). <i>See Some.</i>	... ..	...
DARDANELLES, The Three Days' Naval Action in the, on the 17th, 18th, and 19th July, 1657. (Translated from the "Marine Rundschau.") <i>See Naval.</i>	... ..	...
DASHIELL Gun, The ... ..	... ..	...

Page	Subject.	Names of Authors, Translators, and those taking part in Discussions.	Page
819 822 823	DEFENCE, Attack or, Strategically and Tactically Considered ( <i>Lecture</i> ). <i>See</i> Attack.	... ..	
824 825 827	DIFFERENTIATION, The, of Naval Force: a Comparison ( <i>Lecture</i> ).	SWINBURNE, H. LAWRENCE, Esq. <i>Discussion—</i> Ommanney, Admiral Sir Erasmus, C.B. ... Colomb, Admiral P. H. ... Baylis, Colonel G. C. ... Hicks, Mr. Edward ... Battenberg, H.S.H. Prince Louis of, G.C.B. (Chairman).	1207 1231 1231 1233 1233 1234
	EAST Africa, 1892. Transport, Supply, and Equipment of the British Section of the Commission for the Delimitation of the British and Portuguese Spheres of Influence in. <i>See</i> Transport.	... ..	
1247	EFFECT of the Lee-Metford Bullet, The, on the Bones of Horses.	SMITH, VETERINARY - CAPTAIN, F., A.V.D.	41
	ELECTRIC Light Projectors for Coast Defence. (Translated from the "Rivista Marittima" for January, 1894.)	HADDY, T. J., R.N. (Translated by).	326
	ESSAY, Naval Prize. <i>See</i> Tactics.	... ..	
	ESSAY, Naval (Specially Mentioned). <i>See</i> Tactics.	... ..	
	EXPLOSIVES, Researches on Modern. <i>See</i> Researches.	... ..	
	FIRING Line, The, and how to keep it Organically Subdivided to the Last ( <i>Lecture</i> ).	SAWYER, LIEUTENANT-COLONEL H. A., Commandant 45th (Rat-tray's) Sikhs. <i>Discussion—</i> Gunter, Lieutenant-Colonel ... Dooner, Colonel ... Keyser, Colonel, C.B. ... Trotter, Colonel ... Barrett, Major-General R. D. ... Buller, Sir Redvers H. (Chairman).	711 732 733 735 735 735 735
68	FLAG, The Admiralty. <i>See</i> Admiralty.	... ..	

Subject.	Names of Authors, Translators, and those taking part in Discussions.						Page
FLEET Actions, Torpedo-boats in. <i>See</i> Torpedo.	...	...	...	...	...	...	
FOREIGN Books, List of Recent—							
January Journal ... ..	...	...	...	...	...	...	99
February 77 ... ..	...	...	...	...	...	...	214
March 77 ... ..	...	...	...	...	...	...	349
April 77 ... ..	...	...	...	...	...	...	466
May 77 ... ..	...	...	...	...	...	...	572
June 77 ... ..	...	...	...	...	...	...	672
July 77 ... ..	...	...	...	...	...	...	788
August 77 ... ..	...	...	...	...	...	...	890
September 77 ... ..	...	...	...	...	...	...	1011
October 77 ... ..	...	...	...	...	...	...	1170
November 77 ... ..	...	...	...	...	...	...	1314
December 77 ... ..	...	...	...	...	...	...	1456
FOREIGN Journals, Contents of. <i>See</i> Contents.	...	...	...	...	...	...	
FOREIGN Periodicals, Contents of. (The notice in each Journal refers, as a rule, to the Foreign Periodicals of the previous month.)							
January ... ..	...	...	...	...	...	...	95
February ... ..	...	...	...	...	...	...	206
March ... ..	...	...	...	...	...	...	349
April ... ..	...	...	...	...	...	...	466
May ... ..	...	...	...	...	...	...	572
June ... ..	...	...	...	...	...	...	672
July ... ..	...	...	...	...	...	...	788
August ... ..	...	...	...	...	...	...	890
September ... ..	...	...	...	...	...	...	1011
October ... ..	...	...	...	...	...	...	1170
November ... ..	...	...	...	...	...	...	1314
December ... ..	...	...	...	...	...	...	1456
FRANCE, The Invasion of. <i>See</i> Invasion.	...	...	...	...	...	...	
FREDERIC the Great, The Wars of. By the German General Staff ( <i>Précis</i> of the Introductory Chapters.) <i>See</i> Wars.	...	...	...	...	...	...	
GUNS, Machine, with Cavalry ( <i>Lecture</i> ). <i>See</i> Machine.	...	...	...	...	...	...	
HORSES in War, the Loss of. <i>See</i> Loss.	...	...	...	...	...	...	
INFANTRY Fire on the Battlefield, Some Methods of Executing ( <i>Lecture</i> ). <i>See</i> Some.	...	...	...	...	...	...	
INVASION of France, The	...	...	...	...	...	...	449



Page	Subject.	Names of Authors, Translators, and those taking part in Discussions.	Page
	IRELAND, 1893, Manœuvres in. <i>See</i> Manœuvres.	... ..	
99 214 349 466 572 672 788 890 1011 1170 1314 1456	ITALIAN Operations at Agordat, The, in the Eastern Sudan. Notes and Documents by General E. Arimondi.	PAGET, COMMANDER A., R.N. ...	845
	KENKA-HEBLER Bullet, The ... ..	NATHAN, CAPTAIN F. L., R.A. ...	172
	LEE-METFORD Bullet, The Effect of the, on the Bones of Horses. <i>See</i> Effect.	... ..	
	LESSONS from the Past for the Present ( <i>Lecture</i> ).	HENDERSON, LIEUT.-COLONEL G. F. R., Professor of Military Art, Staff College.	1183
		<i>Discussion—</i>	
		Gosset, Brigadier-General ...	1199
		Wilkinson, Mr. Spenser... ..	1200
		James, Captain W. H., late R.E.	1201
		Gunter, Lieut.-Colonel E. ...	1203
		Hale, Colonel Lonsdale, late R.E.	1203
		Wood, Lieut.-General Sir Evelyn, B.C., G.C.B., G.C.M.G., Quartermaster-General of the Forces (Chairman)	1205
95 206 349 466 572 672 788 890 1011 1170 1314 1456	LIST of the Army Regulations and Instructions in Force on the 1st January, 1894.	... ..	217
	v. LÜBELL'S Annual Reports on the Changes and Progress in Military Matters during 1893.	HILDYARD, COLONEL H. T., Commandant, Staff College.	1081
	Loss of Horses in War, The ... ..	SMITH, VETERINARY CAPTAIN F., F.R.C.V.S., F.I.C., Army Veterinary Department.	267
	MACHINE Guns with Cavalry ( <i>Lecture</i> ).	THOMSON, CAPTAIN W. ANSTRUTHER, Royal Horse Guards.	617
		<i>Discussion—</i>	
		Beauchamp, Major, 20th Hussars.	633
		East, Captain ... ..	634
		Stone, Major G. ... ..	635
		Dickson, Colonel J. B. B. ...	636
		Hale, Colonel Lonsdale, late R.E.	636
		Fraser, Lieut.-General J. Keith (Chairman).	638

Subject.	Names of Authors, Translators, and those taking part in Discussions.	Page
MAGAZINE Rifle Trials in the United States.	NATHAN, CAPTAIN F. L., R.A.	175
MANCEUVRES in Ireland, 1893 ... ..	...	419
MANCEUVRES, their Planning and Execution.	WILLE, COLONEL, Chef d'Arme of the Swiss Cavalry. Goodenough, Lieut.-General W. H., C.B., R.A. (Translated by).	71
MARINE Machinery, Recent Progress in. By Nabor Soliani. (Translated from the "Rivista Marittima.") <i>See Recent.</i>	...	...
MASSACHUSETTS Cavalry Volunteers during the American Civil War, A Précis of the History of the 1st Regiment of. <i>See Précis.</i>	...	...
MEMBERS, Names of, who joined the Institution between the 1st October and the 31st December, 1893.	...	101
Do. do. do. between the 1st January and the 31st March, 1894.	...	479
MILITARY Topography ( <i>Lecture</i> ) ...	VERNER, MAJOR WILLOUGHBY, Rifle Brigade.	687
	<i>Discussion—</i>	
	Trotter, Lieutenant-Colonel, R.E.	703
	Dooner, Colonel ... ..	704
	Wilson, Major-General Sir Charles.	705
	Watkin, Lieut.-Colonel, R.A. ...	706
	Maloney, Captain ... ..	706
	Gunter, Colonel E. ... ..	707
	Featherstonhaugh, Colonel, R.E.	707
	Goldsmid, Lieutenant-Colonel...	707
	Boyle, Colonel ... ..	708
	Weldon, Colonel ... ..	709
	Connaught and Strathearn, H.R.H. The Duke of	709
MORAL Element, The, in Strategical Science of the Nineteenth Century.	BURTON, R. G., LIEUTENANT, 1st Infantry, Hyderabad Contingent.	739
NATIONAL Methods of Obtaining a Supply of Seamen ( <i>Lecture</i> ).	CRUTCHLEY, W. C., LIEUTENANT, R.N.R.	921

Page	Subject.	Names of Authors, Translators, and those taking part in Discussions.	Page
175		<i>Discussion—</i>	
419		Elliott, Admiral Sir George, K.C.B.	934
71		Rathrer, Captain... ..	935
		Colomb, Vice-Admiral ... ..	935
		Baden-Powell, Sir George, M.P.	936
		Lowdell, Mr. E. L. ... ..	938
		Baden-Powell, Lieutenant W., R.N.R.	939
		Brassey, Lord, K.C.B. (Chairman).	921
	NATIONAL War, The, on the River Loire in 1870. A Review of Captain Hoenig's work.	WESTERN, MAJOR W., R. West Kent Regiment.	511
	NAVAL Action in the Dardanelles, The Three Days', on the 17th, 18th, and 19th July, 1657 (Translated from the "Marine Rundschau").	GARBETT, COMMANDER H., R.N. (Translated by).	51
101	NAVAL Force, The Differentiation of: a Comparison ( <i>Lecture</i> ). <i>See</i> Differentiation.	... ..	
479	NAVAL Manœuvres of 1893, Notes on the English. (Translated from the "Rivista Marittima" of January, 1894.) <i>See</i> Notes.	... ..	
687			
703	NEW Method, A, of Manœuvring, "Controllable" Torpedoes or other Vessels when absolutely Invisible to the Operator ( <i>Lecture</i> ).	SLEEMAN, LIEUT. C. W., late R.N.	1367
704		<i>Discussion—</i>	
705		Frazer, Mr. Everett W. ... ..	1380
706		Anson, Captain C. V. ... ..	1381
706		M'Evo, Captain... ..	1381
707		Wilson, Mr. Walter Gordon ...	1381
707		Brennan, Mr. Louis, C.B. ... ..	1382
707		Colomb, Vice-Admiral Philip A. (Chairman).	1382
708	NOTES, Military, January Journal	... ..	91
709	" February "	... ..	202
709	" March "	... ..	345
	" April "	... ..	464
	" May "	... ..	567
739	" June "	... ..	667
	" July "	... ..	783
	" August "	... ..	882
921	" September "	... ..	1003
	" October "	... ..	1158
	" November "	... ..	1301
	" December "	... ..	1446

Subject.	Names of Authors, Translators, and those taking part in Discussions.	Page
NOTES, Naval, January Journal	...	81
" February	...	193
" March	...	335
" April	...	453
" May	...	557
" June	...	657
" July	...	769
" August	...	867
" September	...	991
" October	...	1141
" November	...	1287
" December	...	1429
NOTES on the English Naval Manœuvres of 1893. (Translated from the "Rivista Marittima" of January, 1894.)	HADDY, T. J., R.N. (Translated by).	187
NOTICES of Books, January Journal	...	97
" February	...	209
" March	...	352
" April	...	470
" May	...	576
" June	...	677
" July	...	792
" August	...	895
" September	...	1015
" October	...	1174
" November	...	1320
" December	...	1462
ORIGIN and History of the Admiralty Badges.	BLOMFIELD, REAR-ADMIRAL R. M.	133
PHYSICAL Development, The Art of Breathing as applied to ( <i>Lecture</i> ). <i>See Art.</i>	...	...
PRÉCIS of the History of the 1st Regiment of Massachusetts Cavalry Volunteers during the American Civil War, A.	HENDERSON, CAPTAIN R. A., the Manchester Regiment.	143
PRIZE Essay, Naval, 1894. <i>See Tactics.</i>	...	...
PRUSSIAN Cavalry, The Rise, Decay, and Revival of the. <i>See Rise.</i>	...	...
RAM, The, in Action and in Accident ( <i>Lecture</i> ).	CLOWES, W. LAIRD, United States Naval Institute, Fellow of King's College. <i>Discussion—</i> Nicholson, Vice-Admiral ... Baden-Powell, Lieutenant W....	223 233 234

Subject.	Names of Authors, Translators, and those taking part in Discussions.	Page
	Curtis, Captain ... ..	235
	Boys, Admiral ... ..	235
	Hamilton, Admiral Sir R.	235
	Vesey, K.C.B. (Chairman)	
	Forster, Mr. Arnold, M.P. ...	236
	Hicks, Mr. E. Rupert ... ..	238
	Crutchley, Lieut. W. C., R.N.R.	239
	Blacker, Major ... ..	239
	Berkeley, Commander, R.N. ...	239
RECENT Progress in Marine Machinery. By Nabor Soliani. (Translated from the "Rivista Marittima.")	HADDY, STAFF ENGINEER T. J., R.N. (Translated by).	1069
RESEARCHES on Modern Explosives ...	MACNAB, WILLIAM, F.I.C., F.C.S., and E. RISTORI, Assoc. M. Inst. C.E., F.R.A.S.	979
RISE, Decay, and Revival of the Prussian Cavalry, The.	MAUDE, CAPTAIN F. N., late R.E.	20
ROCK Fortresses, The, of Velez de la Gomera and Alhucemas.	DALTON, LIEUTENANT-COLONEL J. C., R.A.	747
RUSSIAN Navy, The. (Translated by permission from "La Vie Contem- poraine.")	GARBETT, COMMANDER H., R.N. (Translated by).	179
SAXE, The Campaigns of. See Campaigns.	... ..	
SCHOOL Swordplay ... ..	HUTTON, CAPTAIN A., late K.D.G.s.	975
SEAMEN, National Methods of Obtain- ing a Supply of ( <i>Lecture</i> ). See National.	... ..	
SIGNALLING by Night and Day: The Telephotos: A New Means of Electri- cal, for the Naval, Military, Merchant Marine, Lighthouse, and Life-saving Services. With Practical Demonstra- tion of its Application. See Telephotos.	... ..	
SIGNALLING: Present Defects and Sug- gested Improvements ( <i>Lecture</i> ).	HARRISON, LIEUT.-COLONEL A. STEWART.	1043
	Discussion—	
	Bower, Captain (Oxford Light Infantry).	1060
	Lethbridge, Lieutenant W. S. C. (Grenadier Guards).	1061
	Yonge, Major-General W. Lam- bert.	1061
	Maude, Captain, late R.E. ...	1064

Subject.	Names of Authors, Translators, and those taking part in Discussions.	Page
	Hanbury, Captain ... ..	1065
	Dallmeyer, Mr. ... ..	1065
	Power, Captain ... ..	1065
	Belhaven and Stenton, Brigadier-General The Right Hon. Lord (Chairman).	1066
SOLDIER'S Sore Foot, The ( <i>Lecture</i> ) ...	BEEVOR, SURGEON - CAPTAIN W. C., Scots Guards.	243
	<i>Discussion—</i>	
	Fergusson, Lieut.-Colonel J. A. (Royal Military College).	257
	Eddowes, Dr. A. ... ..	258
	Jackson, Surgeon - Captain, M.D., A.M.S.	259
	Myers, Brigade-Surgeon Lieut.-Colonel Arthur B. R.	259
	Jameson, Surgeon-Major-General, M.D.	260
	Dashwood, Major F. L. ...	260
	Hoskier, Captain F. H. ...	263
	Methuen, Major-General Lord, C.B., C.M.G., Commanding Home District (Chairman).	264
SOME Aspects of Coast Defence ( <i>Lecture</i> )	JOCELYN, LIEUTENANT-COLONEL J. R. J., R.A.	587
	<i>Discussion—</i>	
	Stone, Major F. G. ... ..	605
	Lloyd, Colonel F. T. ... ..	606
	Richardson, Colonel ... ..	609
	Elmslie, Major F. B., R.A. ...	612
	Coles, Colonel C. H. ... ..	613
	Cleveland, Rear-Admiral H. F. (Chairman).	615
SOME Methods of Executing Infantry Fire on the Battlefield ( <i>Lecture</i> ).	MAYNE, CAPTAIN C. B., R.E. ...	1025
	<i>Discussion—</i>	
	Slade, Colonel ... ..	1035
	James, Captain W. H., late R.E.	1036
	Capper, Major ... ..	1037
	Lloyd, Major ... ..	1037
	Gunter, Lieutenant-Colonel E.	1038
	Johnstone, Captain, R.E. ...	1038
	Trotter, Colonel ... ..	1038
	Clive, Lieutenant-General E. H. (Chairman).	1041
SORE Foot, The Soldier's. <i>See</i> Soldier's.	... ..	...

Subject.	Names of Authors, Translators, and those taking part in Discussions.	Page
SOUDAN Français, Le, and Recent French Operations on the Upper Niger ( <i>Lecture</i> ).	OLIVER, CAPTAIN S. PASFIELD, late Royal Artillery.	943
	<i>Discussion—</i>	
	de Houssey, Major Le Comte Dupontavice.	972
	Le Clerc, Captain ... ..	973
	Goodenough, Lieut. - General W. H., C.B., R.A. (Chairman).	974
STEAM Transport on Roads ( <i>Lecture</i> ) ...	TEMPLER, LIEUTENANT-COLONEL J. L. B., 7th Batt. K.R.R.C.	829
	<i>Discussion—</i>	
	Wantage, Lord ... ..	838
	Grattan, Colonel... ..	839
	Maude, Captain, late R.E. ...	840
	Fraser, Colonel, R.E. ... ..	840
	Grant, Lieut.-General, R.E., C.B., Inspector-General of Fortifications (Chairman).	843
STRATEGICAL Science of the Nineteenth Century, The Moral Element in. See Moral.	... ..	
STUDY of War Navies, The ... ..	PESTITCH, GENERAL, of the Russian Imperial Marine.	753
SWORDPLAY, School. See School.	... ..	
TACTICS, The, best adapted for Developing the Power of existing Ships and Weapons (Gun, Ram, and Torpedo) which should regulate Fleets, Groups, and single Vessels in Action. Naval Prize Essay, 1894.	STURDEE, COMMANDER F. C. D., R.N.	365
	<i>Discussion—</i>	
	Cleveland, Admiral ... ..	1237
	Colomb, Vice-Admiral P. H. ...	1239
	Blaxland, Captain ... ..	1241
	Anson, Captain ... ..	1242
	Brine, Vice-Admiral Lindesay... ..	1242
	Sturdee, Commander F. C. D. ...	1243
	Hoskins, Admiral Sir Anthony Hiley, G.C.B. (Chairman).	1245
Do. do. (Specially mentioned)	CALTHORPE, LIEUTENANT S. A. G., R.N., H.M.S. "Vernon."	481
TELEPHOTOS, The: A New Means of Electrical Signalling by Night and Day for the Naval, Military, Merchant Marine, Lighthouse, and Life-saving Services. With Practical Demonstrations of its Application ( <i>Lecture</i> ).	GOURAUD, COLONEL G. E. (late), United States Army.	103
	<i>Discussion—</i>	
	Boughton, Mr. ... ..	111
	Cleveland, Admiral ... ..	111
	Quain, Mr. ... ..	111

Subject.	Names of Authors, Translators, and those taking part in Discussions.	Page
	Hamilton, Admiral Sir Vesey ...	111
	Colomb, Vice-Admiral P. H. ...	111
	Keyser, Colonel, C.B. ...	113
	Hamilton, The Right Hon. Lord George, M.P. (Chairman).	113
TOPOGRAPHY, Military ( <i>Lecture</i> ). <i>See</i> Military.	... ..	...
TORPEDO-BOATS in Fleet Actions ...	CIPRIANI, LIEUTENANT M., of the Italian Navy.	762
TORPEDOES, A New Method of Manœuvring "Controllable," or other Vessels when absolutely Invisible to the Operator ( <i>Lecture</i> ). <i>See</i> New.	.. ..	...
TRAINING of Volunteer Infantry, The ( <i>Lecture</i> ).	MAYHEW, LIEUTENANT-COLONEL C. G. A.	1335
	<i>Discussion—</i>	
	Hooke, Colonel Hodson...	1358
	Cave, Colonel T. Sturmy ..	1359
	Buchanan, Colonel ...	1360
	Legard, Colonel J. D. ...	1361
	Matthews, Captain Walter H. ...	1361
	Humphery, Colonel Sir W. ...	1363
	Wilkinson, Mr. Spenser...	1363
	Grenfell, Major-General Sir Francis W., G.C.M.G., K.C.B., D.A.-General for Militia, Yeomanry, and Volunteers (Chairman).	1365
TRAINING of Volunteer Officers, The ( <i>Lecture</i> ).	CAVE, COLONEL T. STURMY ..	899
	<i>Discussion—</i>	
	Alt, Colonel ...	908
	Seton, Major A. D. ...	909
	Tebbutt, Captain Louis...	910
	Wilde, Colonel ...	911
	Aston-Lewis, Captain ...	912
	Belhaven and Stenton, Brigadier-General Lord.	912
	Hoskier, Captain F. H....	913
	Gorman, Captain M. H....	913
	Lucas, Lieutenant-Colonel ...	914
	Balfour, Lieutenant-Colonel ..	914
	Simonds, Lieutenant-Colonel ...	915
	Buchanan-Riddle, Major ...	916
	Bayles, Colonel ...	916
	Trotter, Colonel ...	916
	Taylor, Colonel Du Plat...	917



Subject.	Names of Authors, Translators, and those taking part in Discussions.	Page
	Grenfell, Major-General Sir F. W., G.C.M.G., K.C.B. (Chairman).	917
TRANSPORT, Steam, on Roads ( <i>Lecture</i> ). <i>See</i> Steam.	...	
TRANSPORT. Supply, and Equipment of the British Section of the Commission for the Delimitation of the British and Portuguese Spheres of Influence in East Africa, 1892.	LEVERSON, MAJOR J. J., R.E. ...	115
UNITED States, Magazine Rifle Trials in the. <i>See</i> Magazine.	...	
UPPER Niger, Le Soudan Français, and Recent French Operations on the ( <i>Lecture</i> ). <i>See</i> Soudan.	...	
VELEZ de la Gomera and Alhucemas, The Rock Fortresses of. <i>See</i> Rock.	...	
VOLUNTEER Brigade Camp, A ...	SATTEETHWAITE, MAJOR E., 2nd Vol. Batt. R. W. Kent Regt.	1411
VOLUNTEER Infantry, The Training of ( <i>Lecture</i> ). <i>See</i> Training.	...	
VOLUNTEER Officers, The Training of ( <i>Lecture</i> ). <i>See</i> Training.	...	
WAR Navies, The Study of. <i>See</i> Study.	...	
WARS of Frederic the Great, The. By the German General Staff (Précis of the Introductory Chapters).	MAUDE, CAPTAIN, late R.E. ...	313

# INDEX TO NAMES OF AUTHORS. VOL. XXXVIII.

Name.	Subject.	Page
ANSTRUTHER-THOMSON, CAPTAIN W., Royal Horse Guards.	Machine Guns with Cavalry ... ..	617
BEEVOR, SURGEON-CAPTAIN W. C., Scots Guards.	The Soldier's Sore Foot ... ..	243
BLONFIELD, REAR-ADMIRAL R. M.	Origin and History of the Admiralty Badges.	133
Ditto ... ..	The Admiralty Flag ... ..	1385
BURTON, R. G., Lieutenant, 1st In- fantry Hyderabad Contingent.	The Moral Element in Strategical Science of the Nineteenth Century.	739
CALTHORPE, LIEUTENANT S. A. G., R.N., H.M.S. "Vernon."	Naval Essay (Specially Mentioned) ...	481
CAVE, COLONEL T. STURMY ...	The Training of Volunteer Officers ...	899
CIPRIANI, LIEUTENANT M., of the Italian Navy.	Torpedo-boats in Fleet Actions ...	762
CLOWES, W. LAIRD, United States Naval Institute, Fellow of King's College.	The Ram in Action and in Accident ...	223
CRUTCHLEY, W. C., LIEUTE- NANT, R.N.R.	National Methods of Obtaining a Supply of Seamen.	921
DALTON, LIEUTENANT-COLONEL J. C., R.A.	The Rock Fortresses of Velez de la Gomera and Alhucemas.	747
DIXON, A. L. HOPER, SURGEON- CAPTAIN, A.M.S.	The Art of Breathing as applied to Physical Development.	641
GARBETT, COMMANDER H., R.N. (Translated by).	The Russian Navy. (Translated by per- mission from "La Vie Contem- poraine.")	179
Ditto ... ..	The Three Days' Naval Action in the Dardanelles, on the 17th, 18th, and 19th July, 1657. (Translated from the "Marine Rundschau.")	51
GOURAUD, COLONEL G. E. (late), United States Army.	The Telephotos: A New Means of Electrical Signalling by Night and Day for the Naval, Military, Mer- chant Marine, Lighthouse, and Life- saving Services, with Practical Demonstrations of its Application.	103

Name.	Subject.	Page
HADDY, STAFF ENGINEER T. J., R.N. (Translated by).	Electric Light Projector for Coast Defence. (Translated from the "Ri- vista Marittima" for January, 1894.)	326.
Ditto ... ..	Notes on the English Naval Ma- nœuvres of 1893. (Translated from the "Rivista Marittima" of January, 1894.)	187
Ditto ... ..	Recent Progress in Marine Machinery, By Nabor Soliani. (Translated from the "Rivista Marittima.")	1069.
HARRISON, LIEUT.-COLONEL A. STEWART.	Signalling: Present Defects and Sug- gested Improvements.	1043.
HENDERSON, CAPTAIN R. A., the Manchester Regiment.	A Précis of the History of the 1st Regiment of Massachusetts Cavalry Volunteers during the American Civil War.	143.
HENDERSON, LT.-COLONEL G. F. R., Professor of Military Art, Staff College.	Lessons from the Past for the Present	1183.
HUTTON, CAPTAIN A., late K.D.G's.	School Swordplay ... ..	975.
JOCELYN, LIEUT.-COLONEL J. R. J., R.A.	Some Aspects of Coast Defence ...	587
LEVERSON, MAJOR J. J., R.E. ...	Transport, Supply, and Equipment of the British Section of the Commis- sion for the Delimitation of the British and Portuguese Spheres of Influence in East Africa, 1892.	115.
LLOYD, LIEUT.-COLONEL E. M., late R.E.	The Campaigns of Saxe... ..	1247
V. LÖBELL, COLONEL ... ..	Annual Reports on the Changes and Progress in Military Matters during 1893. (Compiled by Colonel H. T. Hildyard.)	1081
MACNAB, WILLIAM, F.I.C., F.C.S., and E. RISTORI, Assoc. M. Inst. C.E., F.R.A.S.	Researches on Modern Explosives ...	979.
MAUDE, CAPTAIN F. N., late R.E.	Attack or Defence Strategically and Tactically considered.	805
Ditto ... ..	The Rise, Decay, and Revival of the Prussian Cavalry.	20.

Name.	Subject.	Page
MAUDE, CAPTAIN F. N., late R.E.	The Wars of Frederic the Great. By the German General Staff. (Précis of the Introductory Chapters.)	313
MAY, MAJOR E. S., R.A. ... ..	The Action of Cavalry and Horse Artillery, illustrated by Modern Battles.	1
MAYHEW, LIEUT.-COLONEL C. G. A.	The Training of Volunteer Infantry ...	1335
MAYNE, CAPTAIN C. B., R.E. ...	Some Methods of Executing Infantry Fire on the Battlefield.	1025
NATHAN, CAPTAIN F. L., R.A. ...	The Krnka-Hebler Bullet ... ..	172
Ditto ... ..	Magazine Rifle Trials in the United States.	175
OLIVER, CAPTAIN S. PASFIELD, late Royal Artillery.	Le Soudan Français, and Recent French Operations on the Upper Niger.	943
PAGET, COMMANDER A., R.N. (Translated by).	The Italian Operations at Agordat, in the Eastern Sudan: Notes and Documents by General E. Arimondi.	845
PESTITCH, GENERAL, of the Russian Imperial Marine.	A Study of War Navies... ..	753
RISTORI, E., Assoc. M. Inst. C.E., F.R.A.S., and WILLIAM MACNAB, F.I.C., F.C.S.	Researches on Modern Explosives ...	979
SATTERTHWAITE, MAJOR E., 2nd Vol. Battn. R. W. Kent Regt.	A Volunteer Brigade Camp ... ..	1411
SAWYER, LIEUTENANT-COLONEL H. A., Commandant 45th (Rat-tray's) Sikhs.	The Firing Line and how to keep it Organically Subdivided to the Last.	711
SLEEMAN, LIEUT. C. W., late R.N.	A New Method of Manœuvring "Controllable" Torpedoes or other Vessels when absolutely Invisible to the Operator.	1367
SMITH, VETERINARY-CAPTAIN F., A.V.D.	The Effect of the Lee-Metford Bullet on the Bones of Horses.	41
Ditto ... ..	The Loss of Horses in War ... ..	267
SOLIANI, NABOR ... ..	Recent Progress in Marine Machinery. (Translated from the "Rivista Marittima" by Staff Engineer T.J. Haddy, R.N.)	1069

Page	Name.	Subject.	Page
313	STURDEE, COMMANDER F. C. D., R.N.	The Tactics best adapted for develop- ing the Power of existing Ships and Weapons (Gun, Ram, and Torpedo) which should regulate Fleets, Groups, and Single Vessels in Action. Naval Prize Essay.	365
1			
1335	SWINBURNE, H. L., Esq. ... ..	The Differentiation of Naval Force : A Comparison.	1207
1025	TEMPLER, LIEUTENANT-COLONEL J. L. B., 7th Batt. K.R.R.C.	Steam Transport on Roads ... ..	829
172	VERNER, MAJOR WILLOUGHBY, Rifle Brigade.	Military Topography ... ..	687
175			
943	WESTERN, MAJOR W., R. West Kent Regiment.	The National War on the River Loire in 1870. A Review of Captain Hoenig's work	511
845	WILLE, COLONEL, Chef d'Arme of the Swiss Cavalry.	Manceuvres: their Planning and Exec- ution. (Translated by Lieut.-General W. H. Goodenough, C.B., R.A.)	71

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LONDON:  
HARRISON AND SONS, PRINTERS IN ORDINARY TO HER MAJESTY.  
ST. MARTIN'S LANE, W.C.

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**The Journal**  
OF THE  
**Royal United Service Institution.**

VOL. XXXVIII. 1894-95.  
APPENDIX.

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THE SIXTY-FOURTH  
**ANNIVERSARY MEETING,**

*MARCH 2nd, 1895.*

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**The Journal**  
OF THE  
**Royal United Service Institution.**

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VOL. XXXVIII.

1894-95.

APPENDIX.

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THE  
**SIXTY-FOURTH ANNIVERSARY MEETING**  
**MARCH 2nd, 1895.**

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THE SIXTY-FOURTH ANNIVERSARY MEETING of the Members was held in the Theatre of the Institution on Saturday, March 2nd, 1895, Admiral Boys, Vice-Chairman of the Council, presiding.

THE CHAIRMAN:—

I am sorry to inform you that our President and our Chairman will not be present. Our President, as we all know, is away, and our Chairman of Council, General Erskine, is so unwell that he is unable to attend. The Bye-Laws state that the Chair at the Annual Meeting shall be taken by the President, or by the Chairman of the Council, or by the Vice-Chairman, the Senior Vice-President, or a Member selected. It therefore falls to my lot to be in the Chair to-day, and I will now ask the Secretary to read the notice convening the Meeting.

I.—The Secretary read the notice convening the Meeting.

II.—The Sixty-fourth Annual Report was read as follows:—

“1. The Council have much pleasure in submitting their Report for the year 1894.

iv.

# SIXTY-FOURTH ANNIVERSARY MEETING.

2. The following is a statement of the changes which have taken place among the Members during the past year:—

The names of Twenty Annual Subscribers, whose subscriptions were in arrear for two years, have, in accordance with Section V., par. 6, of the Bye-laws, been struck off the list of Members.

			Life.	Annual.	Total.
Members on the 1st January, 1894	..	..	1,769	3,192	4,961
„ joined during 1894	..	..	59	156	215
			1,828	3,348	5,176
Changed from Annual to Life	..	..	+ 9	— 9	—
			1,837	3,339	5,176
		Life. Annual.			
Deduct—Deaths during 1894	..	22 61	22	138	160
Withdrawals	..	57			
Struck off	..	20			
		22 138			
Number on 1st January, 1895	..	..	1,815	3,201	5,016

A tabular analysis of the present and past state of the Institution is given in Appendix A.

For detail of Annual Subscribers, see Appendix B.

## FINANCE.

3. An Abstract of the Accounts, duly audited, is given on next page.

REFERENCE ACCOUNT FOR THE YEAR ENDING 31ST DECEMBER, 1894.  
To Members' Subscriptions for 1894  
" Extra Subscriptions  
£ s. d. £ s. d.

# REVENUE ACCOUNT FOR THE YEAR ENDING 31ST DECEMBER, 1894.

CR.

	£	s.	d.	£	s.	d.	£	s.	d.		
To Members' Subscriptions for 1894	...	...	3,048	12	0	...	...	...	409	0	0
" Extra Subscriptions	...	...	308	19	4	...	...	...	38	10	0
" Entrance Fees	...	...	...	...	3,557	11	4	...	62	10	0
" Life Subscriptions	...	...	...	...	215	0	0	...	91	0	0
" Dividends	...	...	...	...	606	0	0	...	70	4	0
" Interest on Deposit	...	...	...	...	584	0	8	...	67	10	0
"	...	...	...	...	17	5	4	...	62	5	0
" Sale of Journal	...	...	...	...	235	14	8	...	1,065	19	0
" Advertisements	...	...	...	...	45	0	0	...	290	0	0
" Life Members who pay 10s.	...	...	...	...	1	10	0	...	366	12	6
" Honorary Members who pay for Journal	...	...	...	...	4	0	0	...	51	13	10
" Government Grant	...	...	...	...	288	4	8	...	...	...	...
" Lending Library	...	...	...	...	600	0	0	...	189	10	2
" Sale of Library Catalogue	...	...	...	...	45	0	0	...	22	14	3
" Miscellaneous Receipts	...	...	...	...	3	5	0	...	155	14	8
" Rent of Lecture Theatre	...	...	...	...	8	9	9	...	102	16	10
" Colonel Bowdler, Balance of Journal Account	...	...	...	...	8	3	5	...	46	5	0
	...	...	...	...	119	2	4	...	6	8	0
	...	...	...	...	...	...	...	...	1,089	17	8
	...	...	...	...	...	...	...	...	2	14	6
	...	...	...	...	...	...	...	...	...	...	...
	...	...	...	...	...	...	...	...	55	16	0
	...	...	...	...	...	...	...	...	40	17	9
	...	...	...	...	...	...	...	...	...	...	...
	...	...	...	...	...	...	...	...	93	13	9
	...	...	...	...	...	...	...	...	17	15	0
	...	...	...	...	...	...	...	...	47	11	1
	...	...	...	...	...	...	...	...	21	14	6
	...	...	...	...	...	...	...	...	202	11	6
	...	...	...	...	...	...	...	...	3	8	6
	...	...	...	...	...	...	...	...	13	9	0
	...	...	...	...	...	...	...	...	1,270	9	9
	...	...	...	...	...	...	...	...	67	2	0
	...	...	...	...	...	...	...	...	150	0	0
	...	...	...	...	...	...	...	...	81	10	0
	...	...	...	...	...	...	...	...	13	12	1
	...	...	...	...	...	...	...	...	378	17	2
	...	...	...	...	...	...	...	...	1,961	11	0
	...	...	...	...	...	...	...	...	13	13	0
	...	...	...	...	...	...	...	...	5	10	10
	...	...	...	...	...	...	...	...	107	19	10
	...	...	...	...	...	...	...	...	39	17	1
	...	...	...	...	...	...	...	...	209	3	4
	...	...	...	...	...	...	...	...	11	10	0
	...	...	...	...	...	...	...	...	1	1	0
	...	...	...	...	...	...	...	...	4	2	9
	...	...	...	...	...	...	...	...	41	7	5
	...	...	...	...	...	...	...	...	20,050	2	6

By Secretary's Salary	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
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We hereby Certify the above Account to be Correct,

8th February, 1895.

WILDE & VESABLES, Chartered Accountants,  
 ALLAN H. DRUMMOND, Esq., Charing Cross, S.W.  
 FOLLETT FENFELL, Dep. Accountant Gen. of the Navy, } Auditors.

## DR.

ances and Investments.  
**WILDE & VENABLES**, Chartered Accountants.  
**ALAN H. DRUMMOND**, 49, Charing Cross, S.W.,  
**FOLLETT PENNELL**, Dep. Accountant Gen. of the Navy,  
 } Auditors.

18th February, 1895.

## THE NEW PREMISES OF THE INSTITUTION.

4. In the last Annual Report a hope was expressed that the building operations in which the Institution was engaged would be completed in the course of the ensuing summer ; but owing to unforeseen delays this anticipation was not realised. The new premises are, however, now ready for occupation, and H.R.H. The Prince of Wales has graciously promised to open them for the reception of Members on the 20th Feb.

The accommodation thus provided will, in the opinion of the Council, prove sufficient for the future development of the Institution.

## CHANGES IN THE STAFF OF THE INSTITUTION.

5. Captain F. N. Maude, late R.E., has been appointed Editor and Librarian.

## MUSEUM.

6. Hitherto access to the contents of the Museum has been obtainable only by Members, and those to whom they gave orders for the purpose. In future the Museum will be thrown open to the public on five days in each week on payment of a small fee. It is expected that by this means the Institution will become better known than it has been in the past, and that the great national work which it is accomplishing will be duly appreciated.

## PAPERS.

7. Papers on the following subjects were read and discussed during the year, and have appeared in the Journal, viz. :—

COLONEL GOURAUD (Late), United States Army, "The Telephotos : a new means of Electrical Signalling by Night and Day, for the Naval, Military, Merchant Marine, Lighthouse, and Life-saving Services, with practical demonstrations of its application."

W. LAIRD CLOWES, ESQ., "The Ram in Action and in Accident."

SURGEON-CAPTAIN W. BEEVOR, Scots Guards, "The Soldier's Sore Foot."

NAVAL PRIZE ESSAY.—COMMANDER F. C. D. STURDEE, R.N., "The Tactics best adapted for developing the Power of Existing Ships and Weapons (Gun, Ram, and Torpedo) which should regulate Fleets, Groups, and Single Vessels in action."

*Specially Mentioned.*—LIEUTENANT S. CALTHORPE, R.N., H.M.S. "Vernon."

LIEUT-COLONEL J. R. JOCELYN, R.A., "Some aspects of Coast Defence."

CAPTAIN W. ANSTRUTHER-THOMSON, Royal Horse Guards, "Machine Guns with Cavalry."

SURGEON-CAPTAIN A. L. HOPER DIXON, A.M.S., "The Art of Breathing as applied to physical development."

MAJOR WILLOUGHBY VERNER, Rifle Brigade, "Military Topography."

- LIEUT-COLONEL H. SAWYER, Commandant 45th (Rattray's) Sikhs, "The Firing Line, and how to keep it organically subdivided to the last."
- CAPTAIN F. N. MAUDE, Late R.E. "Attack or Defence strategically and tactically considered."
- LIEUT-COLONEL J. L. B. TEMPLER, 7th Bn. K.R.R.C., Instructor in Ballooning, "Steam Transport on Roads."
- COLONEL T. STURMY CAVE, 1st V.B. Hampshire Regt., "The Training of Volunteer Officers."
- LIEUTENANT W. CRUTCHLEY, R.N.R., "National Methods of obtaining a supply of Seamen."
- CAPTAIN S. PASFIELD OLIVER, Late R.A., "Le Soudan Français and recent French operations on the Upper Niger."
- CAPTAIN C. B. MAYNE, R.E., "Some methods of executing Infantry Fire on the Battle-field."
- LIEUT-COLONEL A. STEWART HARRISON, 1st London Vol. Engrs., "Signalling: present defects and suggested improvements."
- LIEUT-COLONEL G. F. R. HENDERSON, Professor of Military Art and History, Staff College, "Lessons from the Past for the Present."
- H. L. SWINBOURNE, ESQ., "The Differentiation of Naval Force: a Comparison."
- LIEUT-COLONEL C. G. MAYHEW, Bde.-Major N. Midland Vol. Bde., "The Training of Volunteer Infantry."
- LIEUTENANT C. W. SLEEMAN, R.N., (Retired) "A new method of manœuvring 'Controllable' Torpedoes, or other vessels, when absolutely invisible to the Operator."
8. Occasional Papers and Translations from Foreign Journals were also contributed by the following Officers: *Occasional Papers* by Major J. Levenson, R.E.; Rear-Admiral R. Blomfield; Veterinary-Captain F. Smith; Captain H. Garbett, R.N. (Retired); Lieutenant Burton, Hyderabad Contingent; Lieut-Colonel Dalton, R.A.; Captain A. Hutton, late King's Dragoon Guards; Major E. Satterthwaite, 2nd Vol. R.W. Kent Regiment; Major E. S. May, R.A., and Veterinary-Captain Smith. *Translations* by Lieut-General W. Goodenough, C.B., R.A.; Lieut-Colonel E. Lloyd, R.E.; Colonel Hildyard, Commandant, Staff College; Staff-Engineer T. Haddy, R.N.; Commander Paget, R.N.; Major W. Western, Royal West Kent Regiment; Captain Maude, R.E. (Retired); Captain R. A. Henderson, the Manchester Regiment; and Captain F. L. Nathan, R.A.

The theatre has been lent to the Home District Tactical and War Game Society, and to the Metropolitan Volunteer Sergeants' Tactical Society for their lectures, to the National Rifle Association, and to several other Societies connected with the Services for their meetings.

#### LIBRARY.

9. The Library now contains about 20,000 volumes, of which two hundred and fourteen have been added since the last Report; of these, one hundred and eight have been purchased, sixty-five presented, and the remainder are bound periodicals, &c.

Donations of books and maps have been received from the Governments of Austria, Denmark, France, Germany, Italy, the Netherlands, Russia, Spain, Sweden, Switzerland, and the United States.

The thanks of the Council have been conveyed to the several Governments for these donations.

The Institution is indebted to the Lords Commissioners of the Admiralty, to the Secretaries of State for War, and for India, for copies of various works issued by their Departments, and to the Speaker of the House of Commons for Parliamentary Papers.

The exchange of Journals with Foreign Governments, and with many Scientific Societies in this and other countries, has been continued.

The Lending Library still continues a success. The numbers who have subscribed since its formation are as follows:—1887, 19; 1888, 58; 1889, 60; 1890, 79; 1891, 71; 1892, 93; 1893, 70; and 1894, 90. Through its medium Members have the advantage of obtaining, by the payment of a subscription of 10s. for 12 months, the loan of books, with the exception of works of reference, &c.

#### GOLD MEDAL.

10. Ten Essays were submitted for competition, the subject being:—

“Lessons to be derived from the operations of landing an Expeditionary Force on an enemy’s coast in past wars, with special reference to similar operations on the part of our Army in the future.”

Rear-Admiral H. Rawson, C.B.; Colonel J. B. Sterling, Coldstream Guards; Captain S. M. Eardley-Wilmot, R.N.; and Lieutenant-Colonel G. F. R. Henderson, Professor of Military Art and History, kindly undertook the duties of Referees; Lieutenant-General Sir Evelyn Wood, V.C., G.C.B., &c., consenting to act as Chairman if required. Their decision will be made known at the Meeting.

11. SUBJECT FOR THE NAVAL PRIZE ESSAY, 1895.

“In view of the changes which have taken place in the composition of Fleets during the present century, what system of entry, training, and distribution is best calculated to ensure an efficient body of officers and men of all branches for a peace and war establishment?”

The competition is open to all members, and to all who are eligible to become members.

## MEMBERS OF COUNCIL.

12. The following members retire, having served three years on the Council:—

## NAVAL.

Vice-Admiral LINDESAY BRINE, Admiral Sir VESEY HAMILTON, K.C.B.,  
Admiral Sir GEORGE WILLES, G.C.B.

## CONCLUSION.

The Institution having after many years of expectancy obtained a home in every way suited to its requirements, the Council venture to hope that it will receive from the Naval and Military Services that amount of support without which it cannot possibly maintain the prominent position accorded to it by public opinion amongst the Scientific and Literary establishments of the country.

By Order,

GERALD R. MALTBY, LIEUT. R.N.,

*Secretary.*

WHITEHALL,

16th February, 1895.



## APPENDIX A.

## TABULAR ANALYSIS OF THE STATE OF THE INSTITUTION.

Year. 1st Jan. to 31st Dec.	Annual Subs. received.	En- trance Fees.	Receipts (from all sources).	Life Subs. re- ceived.	Amount of Stock.	Invested in the pur- chase of Books, &c.	No. of Vols. in Library.	No. of Members on the 31st Dec.
	£	£	£	£	£	£		
1831	654	..	654	1,194	..	..	..	1,437
1832	1,146	..	1,146	973	..	..	..	2,699
1833	1,405	..	1,450	692	..	..	..	3,341
1834	1,500	..	1,549	583	1,100	..	..	3,748
1835	1,480	..	1,574	366	2,430	40	..	4,155
1836	1,570	..	1,682	330	3,747	45	..	4,069
1837	1,549	..	1,747	222	4,747	180	..	4,164
1838	1,462	..	1,634	230	5,500	246	..	4,175
1839	1,399	..	1,565	168	5,500	292	..	4,186
1840	1,363	..	1,525	198	5,500	446	5,500	4,257
1841	1,450	..	1,643	186	6,000	243	5,850	4,243
1842	1,373	..	1,565	144	6,400	373	6,450	4,127
1843	1,299	..	1,494	140	6,700	237	7,000	4,078
1844	1,274	..	1,408	112	3,000	298	7,850	3,968
1845	1,313	..	1,466	228	1,500	127	8,100	3,988
1846	1,298	..	1,456	138	1,500	74	8,410	4,031
1847	1,314	74	1,502	132	1,700	37	..	4,017
1848	1,175	57	1,375	48	1,700	85	9,641	3,947
1849	1,176	72	1,375	84	1,150	58	..	3,970
1850	1,141	106	1,294	198	600	36	..	3,998
1851	1,136	131	1,292	66	666	34	10,150	3,188
1852	1,134	133	1,281	114	200	43	10,300	3,078
1853	1,243	319	1,684	264	528	41	10,420	3,251
1854	1,200	138	1,368	126	612	95	10,587	3,171
1855	1,159	107	1,289	120	653	55	10,780	3,131
1856	1,216	197	1,519	156	761	47	10,832	3,204
1857	1,258	176	1,937	78	1,038	40	10,960	3,168
1858	1,318	221	2,102	105	438	31	11,062	3,246
1859	1,526	195	2,277	512	946	70	11,320	3,344
1860	1,961	298	3,577	397	2,178	114	11,517	3,518
1861	2,122	305	2,899	266	2,846	99	11,812	3,689
1862	2,296	242	3,127	239	3,178	109	12,026	3,797

APPENDIX A—(continued).  
TABULAR ANALYSIS, &c.

Year. 1st Jan. to 31st Dec.	Annual Subs. received.	En- trance Fees.	Receipts (from all sources).	Life Subs. receiv'd	Amount of Stock.	Invested in the pur- chase of Books, &c.	No. of Vols. in Library.	No. of Members on the 31st Dec.
	£	£	£	£	£	£		
1863	2,379	218	3,100	405	3,583	143	12,296	3,847
1864	2,425	215	3,253	222	4,516	116	12,700	3,902
1865	2,435	154	3,467	235	4,804	137	13,000	3,895
1866	2,435	157	3,488	299	5,486	150	13,337	3,891
1867	2,431	141	3,467	208	5,732	140	13,800	3,823
1868	2,446	184	3,534	297	6,396	119	14,100	3,812
1869	2,368	165	3,485	238	6,653	232	14,660	3,792
1870	2,376	178	3,493	333	7,313	140	15,055	3,831
1871	2,455	237	3,677	538	7,748	202	15,501	3,922
1872	2,620	336	4,111	713	8,927	192	15,761	4,116
1873	2,776	295	4,316	535	9,465	222	16,227	4,276
1874	2,819	216	4,491	409	10,189	218	16,624	4,330
1875	2,801	154	4,595*	469	10,721	228	17,000	4,308
1876	2,794	162	4,500	437	11,305	171	17,700	4,320
1877	2,840	218	4,750	526	11,725	217	18,300	4,405
1878	2,881	231	4,700	459	12,091	231	18,750	4,485
1879	2,904	180	4,490	407	12,505	254	19,170	4,473
1880	2,962	255	5,115*	577	12,965	240	19,565	4,531
1881	2,893	238	4,967	645	13,670	240	19,920	4,577
1882	2,829	181	4,739	491	14,069	174	20,352	4,591
1883	2,892	205	5,023	692	15,251	157	20,658	4,627
1884	2,851	172	4,950	491	16,000	207	20,943	4,613
1885	2,857	181	5,121	545	16,902	169	21,370	4,377
1886	2,757	141	4,842	358	17,492	192	21,778	4,368
1887	2,728	141	4,898	401	18,372	160	22,087	4,280
1888	2,716	216	5,238*	512	19,705	195	22,565	4,257
1889	2,663	148	4,874	357	20,498	140	23,046	4,226
1890	2,661	154	4,875	371	21,217	163	23,513	4,200
1891	2,640	189	5,004	454	21,942	153	23,845	4,204
1892	2,930	605	9,429	1,572	24,805	142	24,099	4,657
1893	2,929†	468	8,334	1,095	22,172	157	24,471	4,961
1894	3,598	215	6,625	606	12,840	200	24,680	5,016

\* A legacy of £100 was received this year.

† 319 Members joined between October and December, 1892, who were exempt from paying subscription for 1893.

## APPENDIX B.

DETAIL OF ANNUAL SUBSCRIBERS,  
1894.

Paid for 1894 at £1.....	2,967
"    "    " 10s.....	130
Paid in 1893 for 1894.....	15
New Members who joined between October and December, 1893	99
Commuted to "Life," who did not pay subscription for 1894	3
Deaths and withdrawals, subscriptions unpaid for 1894 ....	38
Members two years in arrears.....	20
Do. in arrears for 1894 .....	56
	<hr/>
	3,348
Deduct, Annual to Life .....	9
	<hr/>
	3,339
{ Deaths ..... 61 }	
{ Withdrawals .. 57 }	
	118
	<hr/>
	3,221
" Struck off for non-payment.....	20
	<hr/>
	<u>3,201."</u>

## The CHAIRMAN :—

Gentlemen,—It now becomes my duty to make a short statement. I propose only to offer a few words to you. I am unable, and I do not propose, to follow the example of our Chairman at the last Annual Meeting, when he made a clear and concise statement with regard to the Institution, chiefly with reference to the building which is now completed and in which we are at present assembled. Such a statement is now hardly necessary; but I may say that we enter into this building free of debt. Our capital has been reduced, of course, and most of it is in this building. On a rough estimate we may say we have £5,000 of capital still remaining. (Hear, hear.) We must bear in mind that our success, and possibly our existence as an Institution, is dependent upon the number of our Annual and Life Members, assisted by donations which we may hope to get; and on the balance of £5,000 in hand I think I am justified in stating that to enter into a building of this description free of debt, with no prospect of extras, with the number of our *clientèle* increasing almost daily, may be considered very satisfactory. At the same time no opportunity must be lost of adding to our funds, and the Council have decided that a whip is to be sent out to members who have not increased, and who, we hope, may increase, their subscriptions. I have in my hand a statement of figures for the year 1894 with regard to subscriptions and to increase of members. In 1894 there was an increase of thirty-seven life members, fifty-two annual members, making a total of eighty-nine. Though not so much as in the two previous years, we may hope still to have a yearly increase. The extra subscriptions in 1894 amounted to £506 12s. 4d., from 977 members. The number of members who have dispensed with the Journal is 779, causing a saving in postage of about £150 per annum. The donations paid amount to £4,652 6s. 3d., and the promises stand at £161. We hope also to see an increase in that item. Some of our members have been very liberal in their donations. I may mention one that is not generally known. Colonel Gascoigne, of Leeds, has sent us a donation of £500. (Cheers.) Some of the City Companies have assisted us with donations, and we may hope for more. With regard to the Museum, no doubt most of those members present have been through it, and have seen that many of the objects exhibited are comparatively ancient. For many years we had expended very little upon our Museum, for the very good reason that in the old place we had no room for further exhibits, and it was not worth while spending our money in models and objects which we were not able to show and had no room to keep. Besides that, we were in a state of transition; we did not know what was to be our fate. I hope, however, during the ensuing year our Museum Committee will take all this into consideration, and then we shall be able to fill up some of our gaps. It is rather noticeable, in the Ordnance Department especially, that we have very few modern models, and we are deficient in quick-firing guns. You will have observed at the farther end of the Museum that some of the eminent ship-building firms have lent us some really excellent models of modern war-ships, which are well worthy of your examination. With respect to the Journal, that has appeared this year in a new garb. It is not perfect, and I know the Journal Committee are going into the subject with a view to improvement. With regard to the furniture, doubtless those members who have been through the building and seen it will be quite satisfied. The estimate has not been exceeded, and the selection has been made by a Sub-Committee, of which our Secretary was the moving spirit. The various Committees attached to the Council, and being part of the Council, have been assiduous in their attendance, have well considered subjects which have been

brought before them, and those subjects have passed through the Finance Committee. Their Reports have also been well thrashed out in the Council, under the very able Chairmanship of General Erskine, before approval. I must refer to another branch of the Museum, viz., the pictures. We have pictures which are both historical and ornamental, principally naval: I wish we had more military. The expense in moving them has not been very great—it has been chiefly incurred in their renovation. There has also been the expense of renewing furniture and refitting old cases with new glass, etc. Of course, we could not bring our exhibits here in their old and dirty condition. Many of the old exhibits were taken out of a lumber room upstairs, hardly any member knowing of their existence. The pictures, are, as I say, both ornamental and historical, and they will well repay the cost that has been incurred with regard to them. Many will be especially appreciated, as recalling to our present members the gallant deeds of their forefathers. I hope the results of the year's work will meet with your approval, will tend to the popularity, usefulness, and prosperity of the Institution, and be appreciated by the Naval and Military Services of the country. Before moving the resolution I will ask the Secretary to read letters which have been received from our Architects, Messrs. Aston Webb and Ingress Bell, and also a communication from our Chairman, who has been sufficiently well to write a Report for us, which will now be read.

The Secretary read the Report of Messrs. Aston Webb and Ingress Bell, and General Erskine's remarks upon it, as follows:—

“ 19, Queen Anne's Gate, Westminster,  
London, S.W., February 28th, 1895.

#### THE ROYAL UNITED SERVICE INSTITUTION.

DEAR GENERAL ERSKINE,—We have to-day received from Mr. Selby, our Surveyor, a final Statement of the Accounts for the New Building, and we shall, in due course, furnish you with a summary of the same. But we know that it will be convenient for you to have now the result.

You will remember that in the Report of the Special Committee of June 16th, 1892, the cost of the building, omitting the electric lighting, which is under Mr. Bowles's charge, was stated as £19,800.

And in our Report of January 3rd, 1893, after the receipt of the tenders, and omitting, as before, the electric lighting item, we gave the cost as £19,860.

After a most careful investigation of the whole of the accounts, the actual cost of the work, including special contracts for plumbing, heating, passenger lift, fire mains, etc., and also those additional works specially authorised by the Committee, including everything, in fact, but the electric lighting and the furniture, proves to be £19,848.

There are a few items, such as fenders, diagram screen, etc., amounting to £100, which must be added to the furniture account, otherwise the above total includes all the accounts of which we have cognizance.

We are, Dear GENERAL ERSKINE,  
Yours very truly,

ASTON WEBB and E. INGRESS BELL.

GENERAL GEORGE ERSKINE,  
etc., etc.,

Lee Park, Blackheath.

Nothing could, in my opinion, be more satisfactory than the report of Messrs. Aston Webb and Ingress Bell on the financial aspect of the work which they have just completed for the R.U.S. Institution.

The calculations on which the original estimates for the building operations were based and afterwards carried out, seem to be a marvel of exactness, and reflect great credit on these gentlemen, as well as on their Surveyor, Mr. Selby.

GEORGE ERSKINE, General,  
*Chairman of Council."*

The CHAIRMAN :—

Before I move the Resolution there is one observation I wish to put before you, namely, that the Council, although they may not be immaculate, have been always actuated by a wish to make the Institution popular amongst the Members, to raise its tone, and to avoid any cause for disagreeable discussion. I now move that the Report be adopted and printed for circulation among the Members.

Admiral Sir GEORGE WILLES, G.C.B. :—

I have much pleasure in seconding that Resolution. I am called upon to second it to-day because our gallant Chairman is absent. I should have made some remarks about his state of health and his valuable services to this Institution, but my gallant friend the Field-Marshal will do that later on.

Lieut-Colonel S. GARDINER (late R.A.) :—

Before putting this Resolution, it is usual to allow members to ask a few questions. I should be glad if you could tell me why the abstract of payments and receipts has been left out of this year's Report. It was stated at the last Annual Meeting that two forms of account had been approved by the Chartered Accountants. This year one of those forms is left out, and the most important one—the abstract of payments and receipts.

Colonel E. T. R. WILDE (1st Tower Hamlets R.V., Chartered Accountant) :—

The account that Colonel Gardiner asks for—the income and expenditure account—has been dropped, because we have now an accurate revenue account. The revenue contains the income on one side, and the expenditure is shown on the other.

Colonel GARDINER :—

But it does not contain the actual payments made during the year.

Colonel WILDE :—

The actual payments made during the year do not, of course, agree either with the revenue account or with the expenditure account, because there are certain accounts owing at the end of the year brought into the expenditure ; in fact, the receipts and payments account is a most misleading document, because it includes only what is actually received and what is actually paid, and there might be some large sums owing at the end of the year that would not be shown in an expenditure account at all. This is the true account. I cannot say that I ever approved of any other. The income and expenditure were put in last year as they were in the previous year ; but the Chairman then made a statement that it was brought in for that purpose, and would not be shown again. (Hear, hear.)

## Colonel GARDINER :—

It was stated in the Report at the Annual General Meeting last year, that these two accounts were put in by the request of the Chartered Accountants. Why has that been modified without any explanation?

## Colonel WILDE :—

I do not think my name was on the income and expenditure account. It was on the revenue account in the form now submitted, and on the balance-sheet. You want to know the revenue and the expenses incurred within a given period, and that is shown on the account you now have.

## Colonel J. S. YOUNG, Deputy-Commissary-General (retired):—

There is another much more important omission from the present Report. In last year's Report there was an estimated account as to our future income and liabilities, but no such estimate appears in this year's Report, so that we have no opportunity of judging what really are the financial prospects of the Institution. It may, perhaps, be judicious to omit it this year, but if it is to be dropped permanently such a departure from past practice will not be for the interests of the Institution, I submit. It seems quite clear, from what the Chairman has said, that we shall only have £5,000 of our capital remaining after paying for our new buildings, and we find also that we have only about sixty more Members at the end of this year than we had last year. We shall, therefore, have to make some special effort, it seems to me, to maintain what everyone would desire should be maintained from the outset of our career in this new Institution, namely, a fair prospect that our expenditure will not exceed our revenue. So far as one can judge, if the receipts remain as they are and our capital is reduced down to £5,000, and if the expenditure should remain as it is at present, there will be a serious deficit at the end of the year, which can only be met—if there is no other source available—from our small capital of £5,000. It, therefore, is a matter of importance that the Council should face the position, and should, in the interests of the Institution, take into its confidence the Members generally. So far as the appeal made some time ago to the public is concerned, we must apparently rely, after all, principally upon the Services themselves; and I think it is to the credit of the Services that the major portion of the sum subscribed in answer to the appeal which has been made has come from the Services themselves. That being the case, it is to the Services that we must look for further future support of this Institution. I venture, therefore, to put it to the Council that it would be a wise thing to take the Members of the Services generally into its confidence, by making a clear statement of what are the prospects before us in regard to our financial condition. We know, from what we have seen in many similar cases, that a condition of affairs which is acknowledged to be bad, draws contributions; but a condition of affairs in which there is no indication on the face of it, of its being bad will not stimulate those sources from which we might draw further income to enable us to maintain this Institution adequately. It is in no spirit of hostile criticism that I make these remarks, but because I believe that, as a matter of policy, it would be better for the Report to go forth to the Services with a distinct statement showing that our financial position is such that increased support from the Services is absolutely necessary.



## The CHAIRMAN :—

I think I can answer this question satisfactorily. In the first place, I know the Council will be glad to take the members into their confidence on any subject that is thought to be desirable ; but with regard to our increase of Members, the figures that I read out only dealt with the year 1894. Since the 1st of January, 1895, I think I am not wrong in saying that we have had nearly a hundred additional members join us ; and since the Prince of Wales opened the Institution, and many individuals have inspected this building and seen its arrangements, we have been receiving daily additions of new members. The question of making reference to the estimated expenditure and income of the present year has been considered by the Council, but it was thought we were in such an uncertain stage in this the first year of our new life that such an estimate could not be formed. We did not know what our numbers might be ; we did not know what our income would be, and any estimate that may be made would be so unreliable that it was not thought worth while to make any estimate at all. At the end of the year we shall, no doubt, be in a better position to judge of our future prospects. It will be our bounden duty to endeavour to obtain new members, and to raise all the funds we can, and you may depend upon it that the Council will do their best in that direction.

## Colonel J. S. YOUNG :—

Are we to take it that an estimate of expenditure and income may appear in our future Reports ?

## The CHAIRMAN :—

I think, perhaps, in the future we may have it ; although, of course, I cannot answer for the future.

## The CHAIRMAN :—

The Resolution is :—" That the Report now read be adopted, and printed for circulation among the members."

The motion having been put from the chair, was declared by the Chairman to be carried unanimously.

## Sir GEORGE H. CHUBB (late Captain 7th Surrey R.V.) :—

I have much pleasure in moving : " That the thanks of this Meeting be given to the Auditors, Allan H. Drummond, Esq., Follett Pennell, Esq., and the firm of Messrs. Wilde and Venables, Chartered Accountants, for their valuable services, and that the following gentlemen be elected for the ensuing year, viz. :—Allan H. Drummond, Esq., Follett Pennell, Esq., Dep. Acct. General of the Navy, Messrs. Wilde and Venables." In moving this Resolution I may say the accounts have been very thoroughly overhauled, both as regards the items of expenditure and receipts—perhaps more fully than in previous years, because of the complications that have arisen owing to the change from the old building to this place. Next year there will be possibly still further alterations, but none of them seriously affecting the form of accounts. I should like to pay personal witness to the time and trouble that Colonel Wilde and others have spent over these accounts, and to assure the members, so far as I am able, on the part of the Finance Committee, that everything has been most satisfactorily and properly carried out. I should like also to refer to the matter to which the Chairman has alluded with regard to



the expense of this building. In my experience in erections of this sort it is a perfectly unique circumstance that the estimates are not only not exceeded, but that instead of costing £19,860 this building will cost some £12 less. (Cheers.) It reflects the greatest possible credit upon both Architects, and upon the Builders and Secretary. I say this because it is a matter almost entirely outside the province of the Finance Committee. We can control expenditure that comes before us in certain ways, and we have to pass certain bills; but it will be easily understood by the members of the Institution that a building of this sort must be erected in full detail thoroughly and properly, and the Architects are responsible for the expenditure, and to them belongs the credit that the expenditure is so small. (Cheers.) Might I also mention, with regard to what Colonel Young has said, that, as a matter of principle, I must disagree with his suggestion as to estimates. I hope we shall never again adopt the plan of making estimates for the future. You can estimate, of course, for things that you know about, but from our experience we know that matters of receipts and expenditure will vary in a way that you cannot foresee twelve months beforehand. The fact, as our Chairman has told us already, that we have a hundred new members since the commencement of the year, certainly shows that any estimate we might put before the public would have been wrong by some hundred subscriptions. I hope we shall confine ourselves at this Annual Meeting to discussing what is actually placed before us as matters of fact, and that we shall not indulge in theory, although I know in some matters it is necessary to make estimates for the future. I have much pleasure in moving this resolution.

Colonel STANLEY G. BIRD (1st Middlesex Rifle Volunteers) :—

I have much pleasure in seconding the resolution, and as a member of the Finance Committee, I would add my tribute also to the excellent way in which the accounts are kept, and to the exertions of the Accountants. It will be in the recollection of the members that until the last two or three years we did not have our accounts regularly audited by Chartered Accountants, but it must be evident to everyone who sees these accounts that they are understandable now, and are in a form that anyone who likes can read. I may add that during the past year we have had the accounts continuously audited. We have not had one audit at the end of the year, which is always considered a most unsatisfactory way of auditing accounts. When that is done the accounts are put before the Auditors. They have no opportunity of following the course of events and seeing how the money is expended, or to check it in any way; whereas, with a continuous audit, they are thoroughly in touch with matters as they go on. That has been done this year, and I believe with very good results. May I say, as a member of the Finance Committee, that besides being a Volunteer Officer I am also a builder. Therefore, I may be supposed to know something about building, and I can tell you it is a most unusual thing for a building to be built for the contract sum. (Laughter.) When I tell you that you will believe it, I dare say; and I think the Architects are very much to be congratulated upon having brought the building out under the contract sum, and a building which is so satisfactory in every way. (Cheers.) I have much pleasure in seconding the Resolution.

The motion having been put from the chair, was declared by the Chairman to be carried unanimously.

The Secretary read the Report of the Referees (Military Prize Essay), which stated that the Gold Medal was awarded to Major Frederick B. Elmslie, R.A., Assistant Superintendent of Experiments, Shoeburyness. It also recommended that the paper by Captain J. Markham Rose, Royal Marine Artillery, should be printed.

General Lord CHELMSFORD, G.C.B. :—

I rise to move: "That a vote of thanks be given to the Referees, viz:—Lieut.-General Sir Evelyn Wood, V.C., G.C.B., Rear-Admiral H. Rawson, C.B., Colonel Sterling, Captain S. M. Eardley-Wilmot, R.N., and Lieut.-Colonel G. F. R. Henderson, for their valuable services in adjudicating on the Military Prize Essays." I am sure any of those who have acted as referees on former occasions will know what a difficult task it is, and what care and attention it requires on the part of the referees, and I feel sure you will be quite willing to give that vote of thanks which I ask you to award to these gentlemen. I think it is a matter of congratulation that the services of the Chairman were not called in to adjudicate as a sort of outside referee. It shows that the choice of the referees was unanimous, as has already been stated, and that is always satisfactory when a gold medal has to be given. I therefore move that our thanks be awarded to the referees.

Admiral Sir EDWARD FANSHAWE, G.C.B. :—

I have very great pleasure in seconding the Resolution which has been proposed by Lord Chelmsford, and I entirely agree in the remarks made as to the responsibility and labour involved in the duties of the referees.

The motion having been put from the chair, was declared by the Chairman to be carried unanimously.

Colonel LONSDALE HALE, late R.E. :—

Mr. Chairman and Gentlemen,—I appear this afternoon as the delegate of the Council in putting before you, for your acceptance, two Resolutions which make important alterations in the Bye-Laws. I do not pretend to belong to that lofty body of Englishmen who are entirely above public opinion, and I do read the newspapers; and, therefore, I have to ask you to dismiss from your minds anything that you may have heard or read with regard to these Resolutions, and to give a perfectly impartial consideration to what I may put forward. The first Resolution is:—"That Para. 1, Section XI., of the Bye-Laws, should read as follows: 'The hours of admission to the Museum of the Institution shall be regulated from time to time by the Council. Members have the privilege of personally conducting their friends through the Museum whenever it is open, and introducing their friends by ticket on Wednesday in each week.'" At present members of the Institution can, every day, give admission to the Museum to their friends by means of tickets. We ask you to restrict that practice to one day in the week; to give up, on five days in the week, the privilege you now have of admitting your friends by ticket, and to take one day only. The reason on the part of the Council is purely financial, for we have provided already for the public coming to the Museum on five days in the week on payment of sixpence. Regarding these tickets as privileges, so to speak, on the part of members, we consider that this privilege of introducing by member's ticket is now of little value. Any member may, of course, give a friend a ticket, and thus save his

friend sixpence, but, unfortunately, the sixpence does not come out of the member's pocket. We do not give our friend sixpence, but the Institution gives it. I want you to bear in mind that every ticket issued for admission to the Museum means sixpence lost to our finances. In the Museum we have sunk a great deal of our capital. We want to get some interest on that capital. We want to get some of the capital back, and we want also the means for increasing our Museum, and we look to these sixpences for those results. You can always bring your friends in personally, and on one day in the week you will have admission for friends by ticket, and it is hoped that one useful employment of that power will be for officers to give their tickets to non-commissioned officers and men. The Museum will be kept shut to the public one day in the week, and be open only to Members and their friends. The Council hope you will accept the proposition put forward, and so assist them financially in carrying on the Institution.

Captain S. M. EARDLEY-WILMOT, R.N. :—

I shall be very happy to second that Resolution. I may say that this matter of opening the museum was gone into very carefully by a Special Committee. They had to consider first of all the interests of members of the Institution, and secondly, the interests of the Institution itself. There was at one time a proposition that the public should be admitted on payment of a small sum every day of the week, but there were certain members who considered the members should have one day in the week when the Museum should be perfectly clear of the public, and they might be able to come in with their friends or by themselves, for the purposes of examination and study. I may say we went into it very carefully at a great number of meetings which we gave to consider this point; and what is now proposed has been done as much in the interests of the members of this Institution as for the public, and to endeavour to get a certain sum to enable us to improve the Museum, as we all know it wants improving.

Captain C. V. ANSON, R.N. :—

I should like to point out there is nothing in the Resolution that gives power to charge for admission.

The CHAIRMAN :—

It is in the Report of the Council which has been adopted.

The motion, having been put from the chair, was declared by the Chairman to be carried unanimously.

Colonel LONSDALE HALE :—

I now have to bring before you a Resolution, in which we ask you to give the Council, absolutely and unconditionally, the power of regulating the admission of members, their friends, and visitors to the new premises. We ask you to give that without any restriction or condition at all, and I will state the reasons why we ask it. The Bye-Laws which regulate the admission of members, strangers, and visitors at present are no longer applicable. They must be altered somehow or other, because the two buildings are entirely different. The old building consisted solely of two small Reading-rooms, a Museum, a very small, straggling Library—nothing else. Here we find a building with a fine Library, fine Reading-rooms, one or two more rooms, and, besides, an amount of other available space,

for which no provision is made whatever in the old Bye-Laws, because it did not exist. If you will take my personal word—and the Chairman and every member of the Council will support me in what I say—the desire of the Council is to utilise every single available inch of space, not to keep members away from it, but to afford them access to it, and convenience in it. One or two rooms might be made available for members who may wish to have a private conference on some matter of business, professional or otherwise. Many of our members say it would be extremely desirable to be able to make appointments to meet here their friends who are not members of the Institution. If you give us the power that we ask, that is the very first thing that we shall take in hand. With regard to the Reading-rooms and Library, by the present Bye-Laws, members only may enter them. It has occurred to the Council, and to members outside the Council, that power might be given to members to take their friends into one or other of the Reading-rooms, where they might be allowed to have a cup of tea or coffee and bread and butter, and even a cigarette. ("No, no.") That is a suggestion that has been put forward. On the other hand, it has been suggested to the Council that, as a very large number of existing members will use these rooms, there will not be room for members' friends. All these different suggestions come to us, and will be duly considered, and it is the desire of every single member of the Council not to keep members out, but to open the buildings to the very widest extent possible to them and their friends, consistently with the comfort of the members. And then with regard to the Library. At present members are the only people allowed in the Library. But why should it be so? You will excuse my intruding my personality upon you, but I am the only person who knows the Library, because in the course of helping to transfer the Library to the new building I have had to note the title of every book and pamphlet in the place, and I have been perfectly astonished at the wealth of our Library. It contains, among other works, between 350 and 400 books published between 1484 and 1700. There is all this mass of old and rare literature. Besides, there is a great amount of other literature, and it does seem rather dog-in-the-mangerish, having this splendid and valuable Library, not to open it to the fullest extent, consistently, as I said before, with the convenience of the members. Would not it be rather behind the times to say that only members should come in there? Might not we make regulations, allowing them to bring their friends in or allowing literary strangers to come? At the present time we are bound hand and foot; we cannot make any fresh arrangements either as to the Reading-rooms or the Library. No doubt you will say, "Why did not you make these arrangements beforehand, and submit them to the meeting and ask for our approval?" And I judge from what I have seen in the papers that that is a sore point. I can assure you, however, that the Council have taken it in hand and tried to work it out. One member said, "We will admit them to one room"; another said, "We will admit them to two rooms," and another had another proposition, and so on; but when we came to consider the matter, we found that we were acting absolutely in the dark—we had no experience to guide us. You may lay it down at this Meeting that members shall go into one Reading-room and not into another. You will be legislating in the dark. What we want is experience, something to go on, and so to feel our way and make rules accordingly; we want to proceed tentatively; we cannot lay down rules beforehand, and we can only gain experience as we find how many members take advantage of the excellent accommodation which is now provided. Perhaps you are not aware how much in past years has been in the hands of the Council. By

the old Bye-Laws there was nothing laid down as to when the building should be opened and closed. We might open it any hour late or early, keep it open as long as we liked; but, nevertheless, the rules were framed according to common sense. Why should anybody suppose that we should be so weak-minded as to do anything now that would cause the slightest inconvenience? I am sure the one wish of the Council is, having borne the burden and heat of the day, to make this building as convenient and pleasant and as roomy for yourselves and friends and visitors as we possibly can. And I ask you, therefore, to give us an entirely free hand in the matter. You can always pull us up; the more suggestions we get from the members the better. All you have to do is to tell us what you want, and we will see if we can do it. Then, if we go astray, let thirty-nine of you put your signatures to a paper—I will make the fortieth—and we can have a Special Meeting called to consider it. I do ask that, as the Council have done their best during the last six months, you will continue your confidence in us, believing that we will do the very best we possibly can to utilise the Institution, and that you will leave us with a free hand in the matter. I will conclude by reading the Resolution:—"To expunge Para. 2, Section XI., and to insert the following: 'The Council shall have the power of regulating from time to time the admission of members, their friends, and visitors to the premises of the Institution, except in cases provided for in the Bye-Laws. The premises to remain, as at present, closed on Sundays.'"

Captain S. M. EARDLEY-WILMOT, R.N. :—

I shall have great pleasure in seconding that resolution, and, after the very clear statement made by Colonel Lonsdale Hale, I do not know that it is necessary to say many more words. Of course, in dealing with these matters, the Council have to consider the interests of members, and also outside interests. If we adopt the too exclusive policy of not admitting friends into the rooms, and keeping them down in the hall, how can we expect that these people will join? If there are people who are eligible to join, the fact of giving them facilities to come into the building and to see the comforts and benefits provided, will make them much more likely to assist us and to belong to the Institution. Of course, you must remember the Council are your deputies; you do them the honour to elect them as Members of the Council, and you must assume that they will work for your interests and for the benefit of the Institution, and I think it is necessary that you should have confidence that they will do the best they can for your benefit, and also for the benefit of the Institution. I think all the changes proposed are tending to popularise the Institution. A member said just now that it appeared to be in a stagnant state, when he consulted the estimates of expenditure and receipts. How could it be considered that the Institution is in a stagnant state, when we find at the end of 1894—for the first time in its annals—it reached the number of 5,000 Members, whereas in 1891 the number was 4,204? Is not that progress? And we know, as we have heard to-day, that considerable accessions of members have come to us since the beginning of the year. If we only go on as we are doing now, and you give us your confidence, being assured that we will do the best we can, I think you will find at the end of the year the 5,000 will be very close upon 6,000.

Colonel M. B. PEARSON (2nd Middx. Artillery Volunteers):—

I would make a suggestion. Colonel Hale's motion contains these words: "Except in cases provided for in the Bye-Laws." I would suggest that they be

altered so as to read: "Except as provided in Para. 1." As it reads at present it is rather obscure to refer to the Bye-Laws, and not to any particular paragraph. I think it will meet your point exactly if you say: "Except as provided in Para. 1." Para. 1 regulates the admission of members for all other purposes, and the Council have it completely at their discretion. I shall be very pleased to support the resolution with that amendment, if Colonel Hale sees his way to accept it.

The CHAIRMAN:—

Do you propose that as an Amendment?

Colonel T. H. BAYLIS, Q.C.:—

I do not think the Amendment is one that could be accepted. We cannot shut out the Bye-Laws. I think Colonel Hale's resolution should stand as it is.

Colonel PEARSON:—

This is an Amendment of the Bye-Laws, and I am perfectly in order.

The CHAIRMAN:—

Do you put it as an Amendment?

Colonel PEARSON:—

I put it as a suggestion. I would rather not put it as an Amendment.

Colonel BAYLIS, Q.C.:—

You had better not, because we really cannot turn out the Bye-Laws. Therefore, we say: "Except in cases provided for in the Bye-Laws."

Colonel PEARSON:—

Then I will put it as an Amendment, that in lieu of the words "Except in cases provided for in the Bye-Laws" you substitute "Except as provided in Para. 1."

Captain Anson seconded the Amendment.

General Lord CHELMSFORD:—

I would point out that para. 1 has become a Bye-Law. We have just passed it, and therefore it becomes a Bye-Law; so to say, "Except in cases provided for in the Bye-Laws," is exactly tantamount to saying, "Except in cases provided for in Para. 1."

The Amendment, having been put from the Chair, was declared by the Chairman to be lost.

Captain PRESTON:—

With reference to the last paragraph in the proposed fourth resolution, I think a number of members would like to have the word "their," in the second line between "members" and "friends," expunged. It reads, at present, as if the Council could have the power to close the Institution to the members, as well as to the public, whenever they thought fit. I do not say they would, but it reads like it. Then, as regards closing the premises on Sundays, it is to be hoped that the Council will at last see their way to allow the valuable Library and Reading-rooms to remain open, say from 2 o'clock on Sundays, and up to 10 p.m. on week days; and as there is, I believe, some of the staff always resident on the premises, little



or no expense would be incurred by opening the Library and Reading-rooms on Sundays. I think a loss of revenue is occasioned to the Institution by the large and increasing number of Officers who are stationed in or near London, and who have little time to spare, except in the evenings, or on Sundays; they are thus debarred from becoming visiting members, and, therefore, do not care to become Annual or Life members. Then, referring to the lectures, it would be much appreciated if some were delivered in the evenings, as many who would wish to attend them have not the opportunity of doing so when they are given in the afternoons.

[The Chairman stated that lectures on subjects connected with the Volunteer Force were given at 5.0 p.m.]

Thank you for the explanation; I was not aware of the fact.

Colonel LONSDALE HALE:—

It always has been so. We may find it necessary for domestic purposes, so to speak, to close the Institution; therefore, we must have the power. We might be shifting the Library, for instance, or cleaning out some room or rooms.

Admiral J. HALLIDAY CAVE:—

I agree to everything that has been said on the second paragraph. I am quite sure that nothing that the Council have suggested would be done against the interests of members, but it struck me that the arbitrary power of regulating the admission of members, their friends, and outsiders, really reads rather as if the members would give up all power or control; and I would suggest as an addition to that paragraph the provision that the hours between which the Museum and the Institution building shall be open to members, their friends, and public visitors, shall be posted up in the various rooms—the hours both for summer and winter months.

Colonel HALE:—

The Bye-Laws give the hours.

Admiral HALLIDAY CAVE:—

I think not. At present the Council have the arbitrary power of, at any time, altering the hours of entry; and a member might come up to town and find the hours changed, and that he was unable to come in. Such a thing is possible. I think if the hours were expressly stated in the Rules, between which the Museum, the Library, and other rooms would be open to members, their friends, or public visitors, it would be an advantage.

Colonel HALE:—

What Rules?

Admiral CAVE:—

The Bye-Laws.

The CHAIRMAN:—

Might I state that the Council have the power to do that. Yours is a suggestion, and the suggestion is one that we will take into consideration. You only want the hours published?

Admiral CAVE :—

That a statement shall be given in the Bye-Laws, of the hours between which these parts of the Institution shall be open to the Members and their friends, and visitors.

The CHAIRMAN :—

The Council have power to do it. I presume you only want it made public?

Admiral CAVE :—

Made public.

Captain S. M. EARDLEY-WILMOT, R.N. :—

I think the end might be gained by inserting a slip in the Journal from time to time during the summer and the winter months, containing the extract from the Bye-Law and the Regulations made by the Council as to the hours of opening and closing. There was only one word I rather jibbed at, that was the word "arbitrary." After all, the Council are only elected by you. You delegate to them the power to make rules and regulations. Therefore, I do not think it is quite right to speak of the "arbitrary" action of the Council.

Admiral CAVE :—

I do nothing of the kind. I have not spoken of the arbitrary action of the Council; I only said the power given was an arbitrary one. I said I was perfectly satisfied that the Council would do nothing against the interest of the members. I hope none of the members of the Council think I made any such suggestion.

Lieut-Colonel E. SATTERTHWAITE (2nd Vol. Bn. Royal West Kent Regiment) :—

There is one question I should like to be allowed to bring under the notice of the meeting and the Council; it is with regard to the time of closing of the Institution on the evenings of week days. I am quite sure I am speaking for a very large number of Volunteer Officers in London and the suburbs who would wish to make the fullest possible use of this Institution, or who, not being now members, would be likely to become members, if, instead of being closed at 8 o'clock, it were left open until 10, or possibly 11. A large number of Volunteer Officers, after leaving their work in the City or in other parts of London, would, under such circumstances, come here and utilise the building, and I think it would be good policy on the part of the Council to arrange some way or other by which the Library and Reading-rooms might be kept open until 10 o'clock.

Major-General C. H. OWEN :—

With regard to the last line of the proposed new Bye-Law 2, Section XI., "The premises to remain as at present closed on Sundays," I do not quite understand whether a formal Amendment was moved by one of the gentlemen in front as to these words or not. If not, I will move as an Amendment that these words, "The premises to remain as at present closed on Sundays," be omitted. I am an Officer who has not had the advantage for many years of serving in London or its immediate neighbourhood, and am aware, from personal experience, that it is on Sunday that a large number of the country members, if I may call them so, have the only opportunity of visiting the Institution and utilising the Library. A large



number of Officers, as we know, come up to London on Saturday, remaining perhaps till Monday, and they would be very glad on many occasions to have an opportunity of referring to the many very valuable works in this Library and of using the Reading-room. I therefore propose as an Amendment that the words, "The premises to remain closed on Sundays," be omitted from the proposed Para. 2, Section XI.

Captain A. L. MORANT (3rd Bn. Wiltshire Regiment):—

I will second that Amendment. Speaking for myself, and on behalf of many Volunteer Officers, I am sure we shall be very glad to be able to use the Library on Sundays.

Colonel LONSDALE HALE :—

I do not at all object to the Amendment. I had to move this resolution, as taking charge of the whole motion, on the part of the Council. I do not, of course, want to speak against the Council, but I, personally, see no harm if this Amendment were carried. You must not, however, suppose if it were so that we should at once open the place on Sundays. The whole thing would be at the discretion of the Council, and I am sure you will all see that there is much to be said on both sides. I am a Sunday opener, but I respect the principles of others. You must not attempt to force a thing of this kind. If a very strong representation comes to the Council from the members that they would like it open on Sundays, that is the way to get the Council to assent to it; but if one or two members only come to-morrow and say, "Open the Library and Museum, and Reading-rooms on Sundays," we should not do it. Send up a representation of what is wanted, and then the Council, having it before them, will take it into consideration. I do not believe the Council will be hurt in the slightest degree by having this line dropped out. I should like to vote for the Amendment, but I cannot, of course, do so.

Field-Marshal Sir LINTORN SIMMONS, G.C.B., G.C.M.G. :—

A great part of this question is involved in the finances of this Institution. If we have to open the building on Sundays we must keep persons here in charge of the Library. I do not think it will be fair upon the Librarian to ask him to give his attention here every day in the week. We should have to appoint an assistant Librarian, and that would be a very serious addition to our expenses in the present condition of our finances. At the present time we are a little doubtful as to what the state of our finance will be at the end of the present year. I hope things will come right, but it is a pure matter of experiment, and I do not think we ought to rush into an extravagance which we do not see our way to meet.

General Lord CHELMSFORD :—

I would venture to appeal to those who are here, and are anxious for it, that they should not press this matter this year. I think when we get to the end of this year, and we see exactly how we stand as regards finances, it will then certainly be the desire of the Council to meet the views of members formally expressed at the next Annual Meeting. But it would be very unadvisable at the present moment to rush into extra expense which, perhaps, we may find ourselves totally unable to meet. (Hear, hear.)

Lieut-Colonel T. H. BAYLIS, Q.C. :—

At the end of the year we shall see how far such a course is practicable. I am not at all against it, but it would be well to get information and suggestions from the members as to the desire there is for it.

The CHAIRMAN :—

I would ask the proposer and seconder to allow this to be taken as a suggestion. My sympathies are not against the amendment, but the reason has been given by the Field-Marshal for its non-adoption. The subject has been before the Council on many occasions, and the question of expense has decided the matter. If the proposer and seconder will allow it to be taken as a suggestion, I am sure the Council will take it into consideration and have it threshed out, and the result will be made known to you. As I said before, we are in a period of transition, and we want the experience of another year before such an alteration can come into play.

Major-General OWEN :—

It seems to me, Sir, to be the duty of every member of this Institution loyally to back up that Council elected by them, and which so ably works for their welfare; but, at the same time, I cannot help thinking that the Council would both wish and be wise to take the general feeling of the members of this Institution who have not, as a rule, the advantage of living in or near London, but who may be present at this Annual Meeting; because I believe there is very naturally, as regards all such institutions, a feeling amongst the outside members that though they pay the same subscription they cannot get equal benefits from the Institution if they are far away from it. It would be desirable to give such members every possible access to the benefits of our Institution which they can take advantage of. It was more especially for this reason, and on behalf of those members, that I proposed the Amendment which I have done. Naturally, the question of expense is one which must be looked to; but I understand that the members of the Council and yourself, Sir, have specially pointed out that to meet those expenses it is necessary to have members, and more members—(hear, hear)—and I think any encouragement in this way held out would be likely to more than counterbalance what would probably be but a very small additional expense in regard to keeping the Library and Reading-rooms open on Sundays. Therefore, with all due respect to the Council and yourself, Sir, I would ask whether it would not be wise, merely as a tentative measure, to adopt my Amendment. Members are fully aware of the absolute necessity of keeping down expenses, but would, perhaps, like to look also to the other side of the question, namely, the advisability of some step being taken, such as this, to increase the possibility of meeting those expenses. Would it not, therefore, be wise, if only to guide the Council in future, to get the opinion of the meeting on this particular point, seeing that both sides of the question are before us, seeing also that we are all of us loyal to the Institution, while anxious to support, in every possible way, that Council to whose efforts we owe so much.

Captain W. RUSSELL, R.E. :—

May I point out that this Amendment merely puts it in the power of the Council to adopt this course?

Major R. HOLDEN (4th Bn. Worcestershire Regiment) :—

As one of the three Members of Council who voted in favour of opening the Institution on Sundays, I see no objection to this amendment being carried. I am sorry to disagree with our Chairman and with my distinguished colleagues the Field-Marshal and Lord Chelmsford, but, as has been just now pointed out, if the amendment is not carried, the Council, however much their disposition may be favourable to the proposition, will have no power to open the Institution on Sundays. If the amendment is carried, we shall have before us the expression of the wish of the members in the matter. But while it does not bind the Council to any particular policy, members may rest satisfied with the assurance that the question will receive the most careful consideration.

The Amendment was then put from the Chair, and declared by the Chairman to be carried by 50 votes against 23.

The CHAIRMAN :—

Under the Bye-Laws there must be a proportional majority to carry such an amendment as this—the majority must be two-thirds, and that majority has been obtained in the present case. I have now to put the resolution as amended :—  
“The Council shall have the power of regulating from time to time the admission of members, their friends, and visitors, to the premises of the Institution, except in cases provided for in the Bye-Laws.”

The motion, having been put from the Chair, was declared by the Chairman to be carried.

The CHAIRMAN :—

The next resolution is one which I think I had better propose myself. It is, “That the Governor-General of Canada shall be added to the list of Vice-Patrons.” This is an omission of very long standing, which has been pointed out by Captain Lowe, R.A., a Corresponding Member of the Institution, lately serving at Halifax. I therefore propose the Resolution.

The motion was seconded by Major-General Lord Methuen, and, having been put from the Chair, was declared by the Chairman to be carried unanimously.

Admiral HALLIDAY CAVE :—

I have great pleasure in proposing :—“That the thanks of this Meeting be given to the Members of the Council who, having served three years thereon, now retire, viz. :—*Naval*. Vice-Admiral Lindesay Brine, Admiral Sir Vesey Hamilton, K.C.B., Admiral Sir George Willes, G.C.B., and that the candidates be elected in accordance with Section IV., Para. 4, of the Bye-Laws.” I am sure all the Members of this Institution must be very greatly indebted to the labours of the Council for having brought the Institution to its present state of perfection. Of course, it is not absolute perfection; but everyone to whom I have spoken who has gone over this building has been excessively pleased, and has spoken about the labour and thought that must have been given to it by the members of the Council. I have an extra pleasure in proposing this Resolution, because I am very much afraid that some people may be under the impression, from a few words I said just now, that I have been rather speaking against the Council. I am sure nothing was further from my thoughts. I have very great pleasure in proposing the motion.

Lieut-General E. H. CLIVE :—

I have great pleasure in seconding this vote of thanks to the members of the Council who retire. We all know that the Council have had by no means a bed of roses during the last year. They have done a good deal of work for us, and in respect to the gentlemen who are now retiring, although we cannot give them a testimonial, I am sure that we can give them a very hearty vote of thanks.

The motion, having been put from the chair, was declared by the Chairman to be carried unanimously.

Admiral Sir GEO. WILLES :—

In the name of my colleagues, Admiral Sir Vesey Hamilton and Admiral Brine, I thank you for the way in which you have moved and carried this vote of thanks. Of course, I am very sorry my period of service has come to an end. It has given me great pleasure to serve on the Council during the time this Institution has been building, and I am pleased to be present at the first Annual Meeting in the new theatre.

Field-Marshal Sir LINTORN SIMMONS :—

I am sure in meeting in this very excellent theatre we must all feel regret that our worthy Chairman is not here to occupy the chair. In saying that, I do not reflect at all upon the acting Chairman, but I feel convinced I speak in the name of the Council and all the members of the Institution when I say that General Erskine's services to this Institution have been unique. He is a man who has devoted a vast amount of attention to the work of the Institution; he has shown great tact and skill in the management of affairs, and, what is more—and by no means a common quality—he has shown a great deal of good common sense in carrying into effect all these changes under no ordinary difficulties, for I know that during the last year he has been frequently suffering from the effects of a malady which, I am sorry to say, a good many of my friends here are suffering from—Anno Domini. He completed his eightieth year last Sunday, and upwards of sixty years in the Service, and I think it is a great triumph on his part that he should have brought this Institution to its present condition. I would also observe, in entering this new Institution, we take leave of the old one. The old one is in a state of decay, and likely not to last very long as a building, but I think it has done very good work for us. (Hear, hear.) For sixty-four years it has been the home of this Institution, which, whilst there, has done a vast deal of good. (Hear, hear.) It has collected a library which, as Colonel Hale has just now remarked, is one of extremely high value, and one as to which I heard it stated by the head of the Intelligence Department at the Admiralty that he had come here to obtain information and had obtained it, which he could not obtain from documents in the Admiralty itself. I think that proves the value of the Library, not only to us, the members, but also to the public. At the same time, in the old Institution we collected the Museum, which has now been transferred to that fine building the old Banqueting House; and, what is more, we put by a considerable sum of money, which has enabled us to build this Institution. (Hear, hear.) I do hope that now that we are starting upon a new life in this new Institution, we shall increase in numbers, increase in usefulness to both Services, and be of real benefit to the country. Our Chairman, General Erskine, I am sorry to say, is ill, but I think we owe him a great tribute of gratitude for all that he has done in obtaining the

ground on which this building stands, and in promoting the erection of this building. We who have been on the Council have heard several proposals as regards the Institution. We have had proposals to build on the old site; we have had discussions as to whether we might accept a building in Jermyn Street, and there have been numerous proposals of one sort or another. Throughout the whole of these discussions, General Erskine has given us right good and sound advice. The result is what we see now, and I think a great tribute is due to the Chairman also that the estimates have not been exceeded. In saying that, I do not wish to reflect at all upon the Architects; on the contrary, I think great credit is due to the Architects for having made so accurate an estimate, and that it has been so carefully and well carried out. During the course of construction, many suggestions have been made which would have run into expense; but we have had the sound advice of General Erskine in dealing with all these matters, and I think we owe to him a great tribute of gratitude. For my part, I shall be very glad to see a picture of him placed in the Institution as a memorial of the work he has done in getting it transferred to this beautiful building. I conclude by moving a vote of thanks to General Erskine.

Admiral Sir JOHN HAY :—

I have been desired to second what has been so admirably said by the Field-Marshal. I can add nothing to what he has said, excepting to hope, Sir, that you will convey to General Erskine the unanimous thanks of this Meeting for the great services he has rendered to the Institution.

The Resolution, having been put from the Chair, was declared by the Chairman to have been carried unanimously.

Field-Marshal Sir LINTORN SIMMONS :—

There is one thing I have forgotten, which, I think, we must not omit, and that is a vote of thanks also to the Chairman who has presided on the present occasion. (Cheers.) He has always been a hard-working man, as I know personally, on the Council. He has done a vast deal of work for the Institution, and has assisted materially in landing us in our new home. I hope, therefore, you will unanimously agree to a vote of thanks to Admiral Boys, our Chairman.

Admiral Sir JOHN HAY :—

I shall be happy to second that also.

Field-Marshal Sir LINTORN SIMMONS :—

There is another point I omitted: that Admiral Boys gave way last year to the exceptional arrangement by which General Erskine succeeded to a second year's duty as Chairman. It was thought advisable, in the interests of the Institution, that General Erskine, knowing so much about it, should remain Chairman for the present year, and Admiral Boys very handsomely gave way, and so we have had a military man in for two years successively, which is quite an exceptional circumstance.

Admiral The Rt. Hon. Sir JOHN HAY, Bart., K.C.B., F.R.S., put the resolution to the meeting, which was carried unanimously.

The CHAIRMAN :—

Before returning thanks, I would observe we want two scrutineers for the ballot for the Council. I will ask Rear-Admiral Walter Stewart and Major Holden if they will be kind enough to undertake the duty. Gentlemen, I am extremely obliged to you, and very much flattered. If I could blush, I am sure I should at the way my name has been connected with this resolution. With regard to our Chairman, General Erskine, I have been associated with him now in the Chairmanship and Vice-Chairmanship of this Institution for some years. I know the energy, the tact, and the sound good judgment which he has devoted to detail, first in obtaining for us the Banqueting Hall for a Museum, and then in the numerous arrangements that were required for the successful occupation of the new building. I am sorry to say that I think his anxiety respecting this Institution for the last few days has not aided his quicker recovery. He has been very anxious to be here, and he could not get here. I know he has been suffering from sleeplessness, and I am afraid his thoughts about this Institution have not tendered to his proper rest. For myself, I am extremely obliged to you, and as long as I am spared I shall be happy to do anything I can for the Institution. I will take care that the resolution of thanks, proposed by the Field-Marshal, and adopted by this Meeting, is conveyed to General Erskine.

This concluded the business.

NOTE.—I inadvertently omitted in my remarks something I intended to bring forward, viz., to ask this meeting to acknowledge, with thanks, the trouble, labour, and time that has been incurred by Lieutenant Maltby, the Secretary, and the staff under him, in the removal from the old Institution to the new one, which has been so successfully carried out.

## PUBLICATIONS PURCHASED AND EXCHANGED DURING 1894.

## ALMANACKS, GUIDES, ETC.—

A B C RAILWAY GUIDE.  
 ALDERSHOT MONTHLY DIRECTORY.  
 ARMY AND NAVY CALENDAR.  
 BOYLE'S COURT GUIDE.  
 BRADSHAW'S MONTHLY RAILWAY GUIDE.  
 BRITISH ALMANACK AND COMPANION.  
 BRITISH POSTAL GUIDE.  
 BURKE'S PEERAGE.  
 CLERGY LIST.  
 DE GOTHA ALMANACK.  
 HAZELL'S ANNUAL.  
 INCORPORATED LAW CALENDAR.  
 KELLY'S POST OFFICE GUIDE.  
 MEDICAL DIRECTORY.  
 NAUTICAL ALMANACK.  
 OLIVER AND BOYD'S EDINBURGH ALMANACK.  
 ROYAL BLUE BOOK.  
 SERVICE ALMANACK.  
 WHITAKER'S ALMANACK.  
 WOOLWICH MONTHLY DIRECTORY.

## INSTITUTIONS AND SOCIETIES.

ALDERSHOT MILITARY SOCIETY.  
 ANTHROPOLOGICAL INSTITUTE.  
 ANTIQUARIES, SOCIETY OF.  
 BRITISH ASSOCIATION.  
 CIVIL ENGINEERS, INSTITUTION OF.  
 EAST INDIAN ASSOCIATION.  
 ELECTRICAL ENGINEERS, INSTITUTION OF.  
 IRON AND STEEL INSTITUTE.  
 JUNIOR ENGINEERING SOCIETY.  
 MANCHESTER, LITERARY AND PHILOSOPHICAL SOCIETY OF.  
 MANCHESTER TACTICAL SOCIETY.  
 MECHANICAL ENGINEERS, INSTITUTION OF.  
 NATIONAL SOCIETY FOR AID TO SICK AND WOUNDED.  
 NATIONAL RIFLE ASSOCIATION.  
 NAVAL ARCHITECTS, INSTITUTION OF.  
 NORTH OF ENGLAND MINING AND MECHANICAL ENGINEERS.  
 ROYAL AGRICULTURAL SOCIETY.  
 ROYAL ARCHÆOLOGICAL INSTITUTE.  
 ROYAL ARTILLERY INSTITUTION.  
 ROYAL ASIATIC SOCIETY, Bengal Branch.  
 ROYAL ASIATIC SOCIETY, Bombay Branch.  
 ROYAL ASTRONOMICAL SOCIETY.  
 ROYAL COLONIAL INSTITUTE.  
 ROYAL ENGINEERS' INSTITUTE.

## INSTITUTIONS, ETC.—(contd.).

ROYAL GEOGRAPHICAL SOCIETY.  
 ROYAL HUMANE SOCIETY.  
 ROYAL INSTITUTION.  
 ROYAL NATIONAL LIFE-BOAT INSTITUTION.  
 ROYAL STATISTICAL SOCIETY.  
 ROYAL SOCIETY OF EDINBURGH.  
 ROYAL SOCIETY OF GREAT BRITAIN.  
 SANITARY INSTITUTE OF GREAT BRITAIN.  
 SHIPWRECKED FISHERMEN AND MARINERS' SOCIETY.  
 SOCIETY OF ARTS, ETC.  
 UNITED SERVICE INSTITUTION OF INDIA.  
 VICTORIA INSTITUTE, LONDON.  
 ZOOLOGICAL SOCIETY, JOURNAL.  
 „ „ TRANSACTIONS OF.

## PERIODICALS.

## Daily—

DAILY NEWS.  
 DAILY TELEGRAPH.  
 GLOBE.  
 MORNING POST.  
 ST. JAMES'S CAZETTE.  
 STANDARD.  
 TIMES.

## Weekly.

ADMIRALTY AND HORSE GUARDS GAZETTE.  
 HOMEWARD MAIL.  
 ARMY AND NAVY GAZETTE.  
 ATHENÆUM.  
 BROAD ARROW AND NAVAL AND MILITARY GAZETTE.  
 COLONIES AND INDIA.  
 ENGINEER, THE.  
 ENGINEERING.  
 INVENTION.  
 IRON.  
 LANCET, THE.  
 NATURE.  
 NAVAL AND MILITARY RECORD AND DOCKYARDS GAZETTE.  
 NOTES AND QUERIES.  
 SATURDAY REVIEW.  
 UNITED SERVICE GAZETTE.  
 VOLUNTEER SERVICE GAZETTE.

## Monthly—

JACKSON'S WOOLWICH JOURNAL.  
 KNOWLEDGE.  
 METEOROLOGICAL OFFICE, PUBLICATIONS.  
 NAUTICAL MAGAZINE.



## PERIODICALS—(contd.).

PHILOSOPHICAL MAGAZINE, LOND.,  
EDIN., DUBLIN.  
SHIPPING WORLD.  
UNITED SERVICE MAGAZINE.  
VOLUNTEER SERVICE MAGAZINE.  
WESTMINSTER REVIEW.

## Quarterly—

ASIATIC REVIEW.  
EDINBURGH REVIEW.  
QUARTERLY REVIEW.

## NAVAL AND MILITARY LISTS—

ARMY LIST, MONTHLY.  
" OFFICIAL, QUARTERLY.  
ARMY LIST, HART'S ANNUAL.  
NAVY LIST, MONTHLY.

## NAVAL AND MILITARY LISTS—(contd.).

NAVY LIST, ROYAL QUARTERLY.  
ARTILLERY LIST, ROYAL MONTHLY.  
" " " QUARTERLY.  
ENGINEERS' LIST, ROYAL MONTHLY.

## MISCELLANEOUS—

ANNUAL REGISTER.  
DEPARTMENT OF DIRECTOR OF MILITARY EDUCATION, EXTRACTS OF PROCEEDINGS OF.  
ORDNANCE COMMITTEE, EXTRACTS FROM THE ANNUAL REPORT OF THE PRESIDENT.  
PROFESSIONAL PAPERS, ROYAL ENGINEERS, S.M.E., CHATHAM.  
STATESMAN'S YEAR-BOOK.

## FOREIGN AND COLONIAL.

## AMERICA, U.S.A.

AMERICAN SOCIETY, CIVIL ENGINEERS.  
ARMY AND NAVY JOURNAL.  
BUREAU OF ETHNOLOGY, ANNUAL REPORT OF.

## NOTES ON THE CONSTRUCTION OF ORDNANCE.

ORDNANCE NOTES.  
SCIENTIFIC AMERICAN AND SUPPLEMENT.  
SMITHSONIAN INSTITUTE, ANNUAL REPORT OF.

UNITED STATES ARTILLERY JOURNAL.  
UNITED STATES CAVALRY ASSOCIATION.  
UNITED STATES GEOLOGICAL SURVEY, REPORTS.

UNITED STATES MILITARY SERVICE INSTITUTE JOURNAL.

UNITED STATES NAVAL INSTITUTE JOURNAL.

UNITED STATES UNITED SERVICE MAGAZINE, THE.

## AUSTRIA.

MITTHEILUNGEN AUS DEM GEBIETE DES SEE-WESENS.

MITTHEILUNGEN ÜBER GEGENSTÄNDE DES ARTILLERIE-UND GENIE-WESENS.

ORGAN DER MILITÄR-WISSENSCHAFTLICHEN VEREINE.

DIE REICHSWEHR.

## AUSTRALIA.

ROYAL SOCIETY OF NEW SOUTH WALES, JOURNAL.

UNITED SERVICE INSTITUTION OF NEW SOUTH WALES, JOURNAL.

UNITED SERVICE INSTITUTION OF VICTORIA, JOURNAL.

## CANADA.

CANADIAN SOCIETY OF CIVIL ENGINEERS, PROCEEDINGS OF.

CANADIAN MILITARY INSTITUTE, TRANSACTIONS.

## GEOLOGICAL AND NATURAL HISTORY SURVEY, REPORT OF.

QUEBEC LITERARY AND HISTORICAL SOCIETY, PROCEEDINGS OF.

ROYAL SOCIETY OF CANADA, PROCEEDINGS OF.

## FRANCE.

ANNUAIRE DE LA MARINE.  
ANNUAIRE DE L'ARMÉE FRANÇAISE.  
JOURNAL DES SCIENCES MILITAIRES.

L'AVENIR MILITAIRE.

LE SPECTATEUR MILITAIRE.

LE YACHT.

LE MONITEUR DE LA FLOTTE.

LA MARINE FRANÇAISE.

LE TEMPS.

REVUE D'ARTILLERIE.

" DE CAVALERIE.

" DES DEUX MONDES.

" DU CERCLE MILITAIRE.

" MARITIME ET COLONIALE.

" MILITAIRE DE L'ÉTRANGER.

" DU GÉNIE MILITAIRE.

" DU SERVICE DE L'INTENDANCE MILITAIRE.

## GERMANY.

ARCHIV FÜR DIE ARTILLERIE- UND INGENIEUR-OFFIZIERE DES DEUTSCHEN REICHSHEERES.

JAHRBÜCHER FÜR DIE DEUTSCHE ARMEE UND MARINE.

JAHRESBERICHTE ÜBER DIE VERÄNDERUNGEN UND FORTSCHRITTE IM MILITÄRWESEN.

MARINE-RUNDSCHAU.

MILITÄR LITERATEUR-ZEITUNG.

" WOCHENBLATT.

NEUE MILITÄRISCHE BLÄTTER.

DEUTSCHE HEERES ZEITUNG.

DIE NEUE PREUSSISCHE KREUZ ZEITUNG.



ITALY.  
RIVISTA MARITTIMA.  
" MILITARE ITALIANA.  
" DI ARTIGLIERIA E GENIO.  
ITALIA MILITARE E MARINA.  
JAPAN.  
SEISMOLOGICAL SOCIETY TRANSACTIONS.  
RUSSIA.  
MILITARY SCIENCE AND LITERATURE,  
MAGAZINE.  
DITTO, NAVAL.  
ARTILLERY JOURNAL.

ENGINEER JOURNAL.  
MILITARY JOURNAL.  
SPAIN.  
REVISTA GENERAL DE MARINA.  
MEMORIAL DE INGENIEROS DEL EJÉR-  
CITO.  
REVISTA TÉCNICA DE INFANTERIA Y  
CABALLERIA.  
SWEDEN.  
KONGL. KRIGSVESSENSKAPS-AKADE-  
MIENS HANDLINGAR OCH TIDSKRIFT.  
SWITZERLAND.  
REVUE MILITAIRE SUISSE.

## MAPS, PLANS, CHARTS, &amp;c.

*Purchased and Presented during 1894.*

Pilot Chart of the North Atlantic Ocean,  
1894. Monthly sheets.  
*By the U.S. Naval Depart.,  
Washington.*  
Wreck Chart of the North Atlantic  
Coast of America.  
*By the Hydrographic Office,  
U.S. Navy.*  
Topographical Atlas of Switzerland  
(in continuation).  
*By the Swiss Govt.*

Topographical Atlas of Denmark  
(in continuation). *By the Danish Govt.*  
Stanford's Chart, Naval Manœuvres,  
1894. *Purchased.*  
Map of Corea and North China.  
*By the Intel. Divn., W.O.*  
Map of Uganda Protectorate.  
*By the Intel. Divn., W.O.*

*The Additions (Books) to the Library will be issued yearly in the form of the  
Library Catalogue.*

*We are indebted to the following for kindly lending valuable Models of  
Modern Battle-ships, Machine Guns, and War-like Matériel.*

Her Majesty's Government.  
Sir W. G. Armstrong, Mitchell and Co.,  
Ltd.  
Canadian Pacific Railway Company.  
Defiance Anchor and Cable Company.  
Gardner Gun Company, Ltd.  
Maxim-Nordenfeldt Gun and Ammuni-  
tion Company, Ltd.  
Morris Tube Ammunition Company,  
Ltd.  
Royal National Lifeboat Institution.

Naval Constructors and Armaments  
Company, Ltd.  
Palmer's Shipbuilding and Iron Com-  
pany, Ltd.  
Messrs. John Penn and Sons, Ltd.  
Messrs. Siebe Gorman and Co.  
Thames Iron Works and Shipbuilding  
Company, Ltd.  
Messrs. J. and G. Thomson, Ltd.  
Messrs. John J. Thornycroft and Co.

## DONATIONS TO THE MUSEUM

HAVE BEEN MADE DURING THE YEAR 1894 AS FOLLOW:—

- Engravings { Escape of the "Calliope."  
Death of Nelson.  
Meeting of Wellington  
and Blücher.  
*By the Art Union of London.*
- Chaco and Undress Cap of the Royal  
Military College.  
*By Captain S. T. Banning, Royal  
Munster Fusiliers.*
- Naval Dirk of the Nelson period found  
by the Father of the Donor in a house  
in Bond Street, believed to be that in  
which Nelson resided after the repulse  
at Teneriffe.  
*By Frank Chapman, Esq.*
- Uniform of the 16th Lancers, 1846.  
*By Major F. L. Dashwood,  
late 16th Lancers.*
- Collision Determinator.  
*By Captain Adolf Ekelöf, Royal  
Swedish Navy.*
- Jacket, Drumsticks, and Pouch picked  
up in the Sikh War, 1845-6. Also  
various Accoutrements.  
*By Lieut-Colonel H. E. E. Everard,  
4th Bn. Worcester Regt.*
- Coloured Print of Heligoland.  
*By Lieut-Col. William Fitz-Gerald.*
- Astrolabe in Case. Period 1667.  
*By Major P. H. Hewitt, late  
6th Dragoon Guards.*
- Prayer Book, which belonged to John  
Adams, one of the Mutineers of  
H.M.S. "Bounty."  
*By the Rev. W. H. Holman.*
- Specimens illustrating the manufacture  
of Gun Flints, from the factory at  
Brandon.  
*By Captain A. C. Lovett,  
2nd Bn. Gloucester Regt.*
- Engraving of the Trophies taken at  
the Battle of Salamanca.  
*By Major S. M. Milne.*
- Platinotype Copy of Portrait of Lord  
Exmouth, by Opie.  
*By Fleetwood Pellew, Esq.*
- Plan of the Encampment of the British  
Forces at Scutari on the Queen's  
Birthday, 1854, surveyed and drawn  
by the Donor.  
*By General Sir Julius Raines, K.C.B.*
- Engraving — Saving of the Guns at  
Maiwand.  
*By Captain O. B. St. John,  
late 58th Regiment.*
- Sikh Head-dress.  
*By Lieut-Colonel H. A. Sawyer,  
Indian Staff Corps.*
- One of the Sashes used in carrying Sir  
John Moore from the Field of  
Corunna, 1809.  
*By Dunthorn J. Wake, Esq.*
- Prints of the Operations under Sir  
Archibald Campbell in the first  
Burmese War.  
*By Brigade-Surgeon-Lt-Col. White.*
- Piece of Chain taken from the Garden  
Gate at Hogoumont the day after the  
Battle of Waterloo by the late Sir  
W. Whymper, Surgeon, Coldstream  
Guards.  
*By Mrs. Whymper.*

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